

# Market Trends and Product Development of Tray-Sealed Single Serving Ready Meals in Sweden, Taiwan and China

Chun-Ning Chen

**MASTER'S THESIS**

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# FIPDes

Food Innovation & Product Design

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**LUND**  
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# Market Trends and Product Development of Tray-Sealed Single Serving Ready Meals in Sweden, Taiwan and China

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# Abstract

Due to the socio-economic evolutions and the busy and hectic lifestyle, ready meals has become one of popular meal solutions for modern people. With the retail value of US\$92.2 billion in 2012 around the world, Euromonitor International (2013b) pointed out that ready meal is a noteworthy market. The study chose to focus on Sweden, Taiwan and China these three countries, since they were the big and potential ready meal market in Europe or Asia. The background led to the aim of this research, by comparing and understanding market trends and product development of tray-sealed single serving ready meals products and packaging in Sweden, Taiwan, and China, one might identify opportunities by learning from each other.

Semi-structured interview, secondary data collection and thematic analysis were the research methods used in the study. Data was collected from ten interviews in different professional areas in Sweden and Taiwan and the secondary data such as literature, reports and websites. After the data collection, the data go through thematic analysis process in order to classify the data into several categories.

The ready meals research was focused on ambient, chilled, and frozen ready meals for single serving with tray-sealed packaging excluding salad, soup, sandwich, pizza, and canned ready meals. Therefore, in theoretical framework, the related terms were introduced, and the relations between ready meals and its related terms were concluded. Besides, the history and developments of ready meals and its packaging in the US and UK, Sweden, Taiwan and China had been described to have a preview on the background.

The outline of both results and discussion followed the structure done from the thematic analysis. First, servings and portions were discussed to certify the focus of the research. Secondly, the differences of the distribution channels between three countries were compared: in Sweden it is mainly supermarkets and hypermarkets, in Taiwan mainly convenience stores which led to the study of convenience stores in Taiwan and China. The current ready meal markets in three countries are discovered and compared at the third part to have a general idea of the current situation. Since the product development procedure generally is very market and consumer oriented, so the consumer perspective have been discussed in the fourth section, including the target consumers, consumer behavior and whether the consumers care about the packaging or not, which led to the fifth topic, ready meals packaging and its evolution.

To end up the research, more trends of ready meals and packaging are reviewed in the further sections. After summarizing the results into the current situation, trends of ready meals and trends of ready meals packaging, the differences between the countries are discussed in order to identify the opportunities for each country to learn from the others. The opportunities in Sweden are, develop more on chilled ready meals, have convenience stores as a channel, and restaurantize convenience stores. The opportunities in Taiwan are provide different ranges of products and change to a better packaging in both functional and eco-friendly way. The opportunities encountered for China are, develop the whole ready meal industry, convenience stores provide ready meal services and referring to other countries in order to develop the business faster. The opportunities summed up from each country can help both the local and foreign clusters to enter a certain country market.

Keywords: Ready Meals, Market Trends, Tray-Seal packaging, Sweden, Taiwan, China

# Abstract 摘要

隨著社會經濟的發展，為了因應忙碌的生活方式，消費者偏好省時、方便、簡易的調理餐點，因此，即食餐 (ready meal) 逐漸成為正餐的熱門選擇。為了瞭解全球即食餐市場的發展趨勢，本研究選擇瑞典、台灣和中國作為主要的研究區域，主要藉由比較瑞典、台灣和中國的即食餐市場，以了解即食餐產品的發展和市場趨勢，進而提出可以學習並應用於各個市場的機會。

本研究的主要研究方法為訪談法、次級資料法及主題分析法。資料來源主要經由與瑞典和台灣相關專業人士進行訪談，以及蒐集相關次級資料，最後，以主題分析法進行資料分析將結果分成不同的主題呈現。

本研究的重點為單人份即食餐產品的市場發展，研究者透過比較瑞典、台灣、中國的通路，發現瑞典主要的即食餐通路為大賣場及超級市場，而在台灣則為便利商店，再者，研究者比較三個國家的即食餐市場以了解目前市場概況。其中，研究發現，即食餐產品的開發通常偏市場與消費者導向，因此本研究針對消費者相關的議題進行討論，包含消費客群、消費者行為及消費者是否在意即食餐的包裝，進而探討即食餐包裝及其發展。最後以說明即食餐及其包裝的市場趨勢作為結尾。

本研究結果經過歸納後，主要說明即食餐市場的發展現況、即食餐的市場趨勢以及即食餐包裝的市場趨勢，整體而言，藉由討論以上三種情形將可以找出值得其他國家學習並應用的市場機會。舉例來說，研究過程中發現，便利商店在瑞典非為即食餐的主要通路，若能發展便利商店餐飲化，將較有機會發展冷藏即食餐；台灣為提供不同系列的產品，其較著重在功能方面和環保方面精進的包裝；中國的市場發展機會在於追求快速拓展即食餐工業，例如：便利商店發展提供即食餐的商品服務。本研究透過分析三個國家的即食餐市場將可以幫助當地或是外國公司進入當地市場。

關鍵字: 即食，即食餐，市場趨勢，封膜包裝，瑞典，台灣，中國

# Executive Summary

## Abstract

The study was conducted by thematic analysis from secondary data such as literatures, reports and website, and ten interviews which respondents' backgrounds are experts from ready meal and its packaging related areas. The whole paper followed the structure build from the analysis: Servings and portions, Distributions, Ready meal market and its evolution, Consumer perspective, Ready meal packaging and its evolution, trends of ready meal and trends of ready meal packaging. From the results, the current situation, trends of ready meal, and trends of ready meal packaging from each country were summarized. By learning from each other, it identified the opportunities countries to help both the local and foreign clusters to enter a certain country market.

## Introduction

Due to the socio-economic evolution such as increasing women workforce and a growing number of single households causing the needs for timesaving, convenience, and minimal food preparation, Ready Meals has become one of the most popular meal solution. According to Euromonitor International (2013), the retail value of ready meals attained US\$92.2 billion in 2012 around the world, and it is expected to maintain this momentum during the forthcoming years up to 2016. Besides ready meals itself, ready meal packaging is also important because sometimes, it is hard to separate trends in food processing and food packaging as each can improve the other. Sweden, Taiwan and China were chosen to be the focusing countries in this research since they have a big and potential ready meal market and it is interesting to see both the Taiwan market and the China market due to many cultural similarities. These led to the main questions of the study, what are the different markets and trends of tray-sealed single serving ready meals in Sweden compared to Taiwan and China? Moreover, the aim of this study was established, which is that by comparing and understanding market trends and product development of tray-sealed single serving ready meals products and packaging in Sweden, Taiwan, and China, one might identify opportunities by learning from each other.

## Method

Ten semi-structured interviews were conducted with ten experts from ready meal and its packaging related area, and the data was collected from Interviewing transcript and notes and secondary data such as literature, reports and website. Using thematic analysis to categorize the data into different topics with a related order to build the structure of the paper. First, servings and portions were discussed to certify the focus of the research. Secondly, the differences of the distribution channels between three countries were compared: in Sweden it is mainly supermarkets and hypermarkets, in Taiwan mainly convenience stores which led to the study of convenience stores in Taiwan and China. The current ready meal markets in three countries are discovered and compared at the third part to have a general idea of the current situation. Since the product development procedure generally is very market and consumer oriented, so the consumer perspective

have been discussed in the fourth section, including the target consumers, consumer behavior and whether the consumers care about the packaging or not, which led to the fifth topic, ready meals packaging and its evolution. After, it's the trends of ready meal and its packaging.

## **Results and Discussion**

The results were elaborated in details following the outline from thematic analysis, and then from the results, the current situations, the trends of ready meals, the trends of ready meal packaging were concluded.

The main current situations need to be noticed are: (1) Ready meals markets are still growing. It keeps growing in both Sweden and Taiwan, and it will grow a lot in China since it is at the beginning stage in there. (2) The huge difference between the main categories of ready meals. Frozen in Sweden, chilled in Taiwan, and probably will be mainly chilled in China. (3) Tray-sealed packaging has grown rapidly in Taiwan in these three years.

The trends of ready meals can be categorized on three main streams: (1) Healthy: Organic, local produced, vegetarian products are increasing, and also the consumers are more aware of the nutritional value of the products. (2) Convenience: In Sweden, there is a new concept "shop-in-shop" from ICA To Go providing on-the-go single serving ready meals, and the ready meal sales in convenience stores is also increasing. In Taiwan, convenience stores started to restaurantize giving a dining area for the customers to consume the products they bought. (3) Different ranges and choices: Premium brands might occur. New flavors and international exotic cuisine are always the factors attracting the consumers. Component food might also be in the trend, which can offer different kinds of components such as meat, sauce and carbohydrates to let the consumers make their own combinations, in addition, having some special meals for some particular demands like elders.

Concerning trends of ready meals packaging, these are: (1) Function: Intelligent packaging, like Micvac, which can pasteurize and vacuum the chilled ready meal in a tray by microwaving to prolong its shelf life up to 30 days, and Culidish, a developing packaging that allows different compartments of the meal to be microwaved in one package making possible that each of them reach the different desired temperature at once. (2) Eco-friendliness: the closure of the tray has changed from plastic lid to plastic film in these three years in Taiwan, and in Sweden, plastic film is the main use. It might change to bag packaging with a user-friendly and ergonomic design for reducing the material use. Recently, Findus, one of the biggest ready meal companies in Sweden, has launched a ready meal with the claim that its packaging only uses 60% of the material used originally.

### Summary of current situation, trends and opportunities in ready meals and its packaging

	Sweden	Taiwan	China
Current situation of ready meals	<ul style="list-style-type: none"> <li>• EUR784 million sales in 2012</li> <li>• Constant value 1% over forecast period 2012-2017</li> <li>• Mainly single serving</li> <li>• Mainly in supermarkets and hypermarkets</li> <li>• Mainly frozen (49%)</li> <li>• Price of frozen ready meal is too cheap</li> <li>• Frozen: office workers and retired people</li> <li>• Chilled: single household want quick good food</li> </ul>	<ul style="list-style-type: none"> <li>• EUR687 million sales in 2012</li> <li>• Constant value 4% over forecast period 2012-2017</li> <li>• Mainly single serving</li> <li>• Mainly in Convenience Stores</li> <li>• Mostly chilled (91%)</li> <li>• Chilled are mainly CVS private brand</li> <li>• 18-45 yrs target consumer</li> <li>• Migration concerns from packaging to food</li> <li>• Tray-sealed package has increased rapidly in these three years</li> </ul>	<ul style="list-style-type: none"> <li>• At the beginning stage starts to grow</li> <li>• Not too many ready meals on the market yet</li> <li>• As a supplement meal: (1) not eating at the regular meal time, (2) want to have food between meals, (3) students between classes</li> <li>• Mainly frozen in supermarkets and hypermarkets</li> <li>• Mainly local brand, few private brand from foreign investment CVS</li> <li>• Problems: logistic, safety, supply chain, cold chain, positioning</li> </ul>
Trends of ready meals	<ul style="list-style-type: none"> <li>• Increasing sales in convenience stores</li> <li>• Price of frozen increasing</li> <li>• Premium brand might appear</li> <li>• Varieties of meal choices</li> <li>• Eco-friendly and fair-trade products slowly growing</li> <li>• More different channels</li> <li>• Component food</li> <li>• Vegetarian</li> <li>• Shop-in-shop</li> <li>• Locally produced</li> </ul>	<ul style="list-style-type: none"> <li>• Start to target elders</li> <li>• Frozen will grow</li> <li>• Vegetarian meal is growing for health and diet demands</li> <li>• New flavors to arise interest on frozen food</li> <li>• Restaurantize: providing dining area</li> <li>• Demands on nutritional value might grow</li> <li>• Organic ingredients for health demands</li> <li>• Exotic themes in frozen to attract people</li> </ul>	<ul style="list-style-type: none"> <li>• From supplement change to single serving</li> <li>• Ready meals sales will grow especially in CVS</li> <li>• Development path will be similar to Taiwan: hot food, frozen, 4°C, 18°C</li> <li>• Main channel will be in CVS and hypermarket, CVS for individual size, hypermarket for family size</li> </ul>
Trends of ready meals packaging	<ul style="list-style-type: none"> <li>• New kind appears: pasteurize and vacuum (Micvac)</li> <li>• Intelligent packaging</li> <li>• Plastic keeps growing</li> <li>• New take-away box form Findus product (60% of original material used)</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on environmental issue</li> <li>• Flexible packaging increase</li> <li>• Possible change into bag packaging</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Taiwan, Japan and other countries</li> </ul>
Opportunities encountered	<ul style="list-style-type: none"> <li>• CVS in Sweden can try to use the develop method or concept of Taiwanese CVS to expand their business in certain stores</li> <li>• Restaurantizing by providing dining area in CVS</li> <li>• Launching more chilled ready meal to provide another kinds of consuming occasion</li> </ul>	<ul style="list-style-type: none"> <li>• Having more kinds of ingredients in chilled by improving technique (ex: seafood in pasteurizing package)</li> <li>• To have premium ready meals in the market</li> <li>• Refers to Sweden to develop ready meal for elders and special need</li> <li>• Changing to a better packaging from Sweden or other countries to improve the quality, shelf life and eco-friendliness</li> </ul>	<ul style="list-style-type: none"> <li>• Providing ready meals services to differentiate the market from CVS, also having private brand</li> <li>• To have premium ready meals in the market</li> <li>• Referring to other countries' experience to develop ready meal business faster</li> </ul>

## **Conclusion**

The opportunities are generated from the current situation of each country and the trends of ready meals and its packaging. The opportunities in Sweden are: (1) Develop more on chilled ready meals, which is still a small market and there will be more opportunities and availabilities if the products have longer shelf life. (2) Have convenience stores as a channel. One of the properties of ready meals is convenience, which the customer in convenience stores seeks, and there is already a complete supply chain and cold chain build in CVS industry. (3) Restaurantize convenience stores. Providing a small dining area in the store with seats and tables to attract more customers to buy and consume the products. The opportunities in Taiwan are: (1) Provide different ranges of products targeting different kinds of consumers such as premium brands and products for elders. (2) Change to a better packaging in both functional and eco-friendly way. Functional packaging like intelligent packaging or packaging to extend the shelf life and quality, and eco-friendly packaging by reducing the material use or using a better material. The opportunities encountered for China are: (1) Develop the whole ready meal industry. Ready meals are still in the beginning stage, so there are huge potential markets in both chilled and frozen ready meals, and the market of its packaging will also relatively grow. (2) Convenience stores provide ready meal services to differentiate the market and have their own private brand. Convenience will become one of the main distribution channels of ready meals. (3) Referring to other countries in order to develop the business faster.

From all of the opportunities above in each country, the food and packaging clusters can find their opportunities to expand their business in those three countries, and they could also know what can they learn from the others.

## **Reference**

Euromonitor International. (2013). *Packaged Food: Euromonitor from trade sources/national statistics*. Retrieved April 4, 2013, from Euromonitor Passport GMID database.

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# 1. Introduction

## 1.1 Background

Nowadays, there are more and more different kinds of food products existing in the markets for people to choose from. Due to the modern lifestyles of people, the needs for timesaving, convenience, and minimal food preparation, ready meals have become one of the most popular meal solutions. Socio-economic evolution such as increased female participation in the workforce, increased time pressure, a growing number of single-person households, and a lack of abilities and experience with preparing meals at home, have boosted the demand for convenience in meal preparations (Costa et al., 2007 and Geeroms et al., 2008).

According to Euromonitor International (2013b), the retail value of ready meals attained US\$92.2 billion in 2012 around the world, and from MarketLine (n.d.) market analysis, the global ready meals market had total revenues of US\$1,113.5 billion in 2011, representing a compound annual growth rate (CAGR) of 3.2% between 2007 and 2011. The global ready meals market has grown at a moderate, steady rate in the last five years. It is expected to maintain this momentum during the forthcoming years up to 2016. Euromonitor International (2013b) pointed out that due to the potential growth in the future, ready meals is a noteworthy market in the packaged food category.

On the aspect of the portion and the size, most ready meals are individual packages made for one person. The reason for this can be traced back to the root of the ready meals product, the “TV dinner.” As reported by Winterman (2013) from BBC, an American company, Swansons, had a huge success in 1953 by launching TV dinners. It contained all the components of the traditional American dinner packed in an aluminum tray which acted as both a baking tray to cook and a plate to eat. Since then, the package of ready meals has been mainly for single serving.

In order to maintain the quality of food products for storage, transportation and end-use, packaging is one of the most important processes (Kelsey, 1985 as cited in Han, 2005). Legislative demands, new technologies and changing consumer preferences and attitudes are the factors leading to new developments in packaging materials and concepts (Gerding et al., 1996). Sometimes, it is hard to separate trends in food processing and food packaging as each can improve the other (Cooksey & Krochta, 2012). Consumer and foodservice needs and demands for global and fast transport of food are the principal drivers for most of these innovations. These packaging innovations mainly originated from industry research and development projects. (Brody et al., 2008)

Multivac, which is one of the leading manufacturers of packaging solutions providing different packaging solutions for foods and pharmaceuticals, has cooperated in this thesis as a partner. In Multivac, one of their product areas is tray sealers, which is the main focus in this report since sealed trays is one of the major packaging options for ready meals.

In this study, Sweden, Taiwan, and China have been chosen to as the focus of discussion and research; these countries were chosen because of several factors. According to a

Reuters study, ready-meals and other “meal solutions” are most popular in America, UK and Sweden, because of the commonness of single households and working women away from home in those countries (Economist, 2002). In Europe, the UK has the highest per capita consumption of both frozen and chilled ready meals. The consumption of frozen ready meals in Sweden is 7.7 kg per capita, which is the second biggest in Europe (Olsson, 2003 as cited in Prim, 2007). Euromonitor International (2013b) also pointed out that the third biggest ready meals market size per capita in Europe is Sweden with 13.0 kg, and the average consumers spent EUR80.1 on ready meals in 2012, which is the top ten country market in the world.

Meanwhile, based on Euromonitor International (2013b), China and Taiwan had the second and third highest market volume and retail value in 2012 in Asia, and Taiwan also had the second highest market volume in 2012 in Asia with 8.4 kg per capita. Moreover, Pattnaik (2007) pointed out that Taiwan is a booming market, and it is the second most important ready meals market in the Asia Pacific region, with a robust average annual growth of almost 53% in the period 2000 to 2006 - an increase in actual total sales of about US\$416 million. In addition, Euromonitor International (2012a) states that in one of the emerging markets, China, retail value sales of ready meals increased by 10% to reach RMB6.7 billion (US\$1.1 billion) in 2012 and is expected to register a healthy constant value CAGR of 5% in the forecast period until 2017.

Chilled ready meals see a value growth of 12% in China in 2012, as consumers show interest in freshness and convenience. In addition, it is interesting to see both the Taiwan market and the China market due to many cultural similarities.

Cui’s (1999) study found the following:

“As the Chinese say among themselves, “Hong Kong and Taiwan learn from the West; Guangdong<sup>1</sup> learns from Hong Kong and Taiwan; and the rest of China learns from Guangdong.” This location allows multinational corporations to identify the upcoming consumer trends in a timely fashion and respond to the changing needs of consumers rapidly and cost-effectively. Success of a flagship operation in these cities can help prime the market in other cities in the hinterlands.”

China's future demand is based on the assumption that Chinese consumers will follow the path of Taiwanese consumers (Huang & Rozelle, 1998).

## 1.2 Problem Discussion

The background leads to the main question of the study:

What are the different markets and trends of tray-sealed single serving ready meals in Sweden compared to Taiwan and China?

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<sup>1</sup> Guangdong (廣東) is a Province on the South China Sea coast of China, and borders Hong Kong and Macau to the south. It is one of the richest province and also the most populous province, and its economy is roughly the same size as Netherlands.

### 1.3 Goal and purpose

The aim of this research is that by comparing and understanding market trends and product development of tray-sealed single serving ready meals products and packaging (both chilled and frozen) in Sweden, Taiwan, and China, one might identify opportunities by learning from each other.

### 1.4 Delimitations

There is no strict definition of ready meals in general. In this thesis, the ready meals research will be focused on ambient, chilled, and frozen ready meals for single serving with tray-sealed packaging. Salad, soup, sandwich, pizza, and canned ready meals might be included in some of the market research and literature references, but it will not be the main focus of the report. As stated in the title, the geographical area of the research will be only focused on the markets in Sweden, Taiwan and China. Due to the limited study time, as well as geographical and cultural reasons, it wasn't possible to have interviewees from China to participate in the research; thus, the viewpoints of Chinese ready meals were derived from existing reports and from the interviewees who have had research or contacts in related areas. Also, the language barrier in Sweden may also limit the study as the author, who does not speak Swedish cannot directly refer to materials and literature in the Swedish language.

## 2. Methodology

### 2.1 Research Approach

The thesis is considered as a qualitative study since qualitative research is characterized as “multi-method in focus, involving an interpretative, naturalistic approach to its subject matter”(Denzin & Lincoln, 1998, cited in Beckeman, 2006).

The research has adopted an inductive approach; for example, as Saunders, Lewis & Thornhill (2007) summarized, the first objective is gaining an understanding of the meanings humans attach to events and a close understanding of the research context. Also, it is the collection of qualitative data. It has a more flexible structure to permit changes of research emphasis as the research progresses. There is a realization that the researcher is part of the research process and is less concerned with the need to generalize. The things mentioned above are what this study is concerned about, specifically, knowing the development and trends by interviewing people, with the aim of gaining deeper insights about this product category. The thesis is also meant to be an exploratory study, which is a valuable means of finding out “what is happening; to seek new insights; to ask questions and to assess phenomena in a new light” (Robson, 2002, Cited in Saunders et al., 2007).

### 2.2 Data collection

According to Yin (2009), data collection covers the evidence, including “the roles of people to be interviewed, the events to be observed, and any other documents to be reviewed when on site.” It frequently leads to accumulating of a huge amount of information (Bryman & Bell, 2003). Both primary and secondary data have been collected in the study. The primary data was gathered from the transcripts and notes from the interviews, and the secondary data was from the literature, reports, and statistic done by other researchers or companies. Bryman & Bell (2003) mentioned that secondary analysis may entail the analysis of either quantitative data (Dale et al., 1988) or qualitative data (Corti et al., 1995), but this study mainly used qualitative data as the secondary data.

#### 2.2.1 Interview

Interviewing is probably the most widely used method in qualitative research (Bryman & Bell, 2003). Whatever an interview's form, its purpose is to get inside someone's head and enter into their perspective (Patton 1990) to find out things like feelings, memories and interpretations that we cannot observe or discover in other ways (Carson et al., 2001). Semi-structured interviews have been used in this research. The researcher covered questions on specific topics as an interview guide, but the interviewees still got considerable freedom in how to reply (Bryman & Bell, 2003).

Ten semi-structured interviews were conducted to gain insights into the different perspectives of ready meals and its packaging development. Due to the logistic

limitations, different forms of interviews were used in the research, such as face-to-face interviews, telephone interviews, internet-mediated interviews and interviewer-administered questionnaires. Most of the interviews were recorded and transcribed in order to prevent misunderstandings, and each interview took approximately 40 minutes to an hour.

## 2.2.2 Respondents

Interviewees who have work experience related to food or packaging industry and are familiar with ready meals from different areas are listed in Table 1. As mentioned in the delimitations, it was not possible to find a respondent from China; instead, there were some interviewees who have done some researches or have had some experience related to working with the ready meals market in China.

**Table 1. Numbers of interviewees in each area**

Area	Sweden	Taiwan
Food Industry	1	
Retailer	1	3 <sup>a</sup>
Packaging Industry	1	
Food Institute	2	1
Packaging Network	1	

<sup>a</sup> 3 interviewees from retailer area including: 2 people from Fresh Food department, and 1 person from China business developing department

**Table 2. Respondent Code and Details**

Number code	Country	Working Area/Company	Position	Experience
SE-F-1	Sweden	Food Industry/ one of the top 3 frozen ready meals companies	Marketing Manager	15 years work experience in the company/the FMCG <sup>1</sup> market.
SE-R-1	Sweden	Retailer/ ICA Maxi <sup>2</sup> store	Owner of one ICA Maxi store	Owner of ICA shop in Boden for 10 years, one in Lund for 7 years. Start the present one since 2005.
SE-P-1	Sweden	Packaging Industry/ Tray-sealing packaging solution Company for Chilled Ready Meals	Technology Project Manager	39 years working experience in food industry.
SE-I-1	Sweden	Food Institute/ National Food Institute, Technical Research Institute, University	Project Manager, Associate Professor	Chemistry background and now working in sensory science for food and other products. Had some ready meal projects before.
SE-I-2	Sweden	Food Institute	Managing Director	37 years working experience in food industry. 10 years working experience in present position.

SE-N-1	Sweden	Packaging Network	Managing Director	More than 20 years experience in Packaging business.
TW-R-1	Taiwan	Retailer/ One of the top 3 CVS <sup>3</sup> company owning top 3 ready meal brand	Development Responsible in Fresh Food Department	6 years experience in CVS industry
TW-R-2	Taiwan	Retailer/ One of the top 3 CVS company owning top 3 ready meal brand	Manager in Fresh Food Department	11 years experience in CVS industry
TW-R-3	Taiwan	Retailer/ One of the top 3 CVS company owning top 3 ready meal brand	Manager in China Business Developing Department	8 years managerial experience in Fresh Food Department
TW-I-1	Taiwan	Food Institute	Researcher	Agricultural economic background. Industrial Analyst in Food and Biotechnology.

<sup>1</sup> FMCG market: Fast-Moving Consumer Goods

<sup>2</sup> ICA Maxi: The 2<sup>nd</sup> biggest retailer brand in Sweden (4.9% breakdown in 2012), which is owned by the biggest retailer with (16.9% breakdown in 2012), Royal Ahold NV (Euromonitor International, 2013f)

<sup>3</sup> CVS: Convenience Store

Background and experience are the most important criteria during selection of the interviewees. In Table 2 above, the details of the respondents are clearly shown.

According to Euromonitor International (2013d), in Taiwan, 84.5% of ready meals sales were distributed by convenience stores (which is also called CVS, a term that will be used later along the paper.) and the private brand of the top three convenience stores owned 89.7% of ready brand shares in 2012. The interviewee from Taiwan research institute has done research in both Taiwan and China. The respondent from packaging network is the managing director who had a lot of working experience in packaging industry and currently works with packaging industry and its stakeholders.

### 2.2.3 Interview Questions

In semi-structured interviews, the interview guide should not be in its only application and should allow some flexibility in the asking of questions, which may not follow the outline exactly (Bryman & Bell, 2003). The interviewer might ask questions not included in the guide to pick up on things said by interviewees, but, in general, most questions will be asked and a similar wording will be used between interviewees (Bryman & Bell, 2003). The interview questions are listed and categorized in Table 4 by using thematic analysis, and from the outline of the questions, it helps to build the structure of the research.

## 2.3 Data Analysis

### 2.3.1 Thematic analysis

Thematic analysis was used in the study for data analysis. It is an essential method for identifying and analyzing patterns in qualitative data (Clarke & Braun, 2013), and

providing practical and effective procedures in conducting an analysis (Attride-Stirling, 2001). Thematic analysis works with a wide range of research questions and any size of data-sets, can be used to analyze different types of data and applied to produce either data-driven or theory-driven analysis (Clarke & Braun, 2013). The thematic analysis in this research followed the stages from Table 3 (Braun & Clarke, 2006) to categorize the content and the questions of the interviews.

**Table 3. Phases of thematic analysis (Braun & Clarke, 2006, p. 87)**

Phase	Description of the process
1. Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

#### *The arranging order of the interview questions*

The first topic, servings and portions, was studied to certify that single serving is still the main type of ready meal and also to see if there is any change in the portion size (or any other different kinds of serving) in the upcoming trends. Secondly, the topic of distribution of ready meals was asked to point out the significant different distribution channels between the countries; thus, convenience stores, the main channel in Taiwan and the potential channel in China, was asked, and further detail was also discussed, such as how the whole system works to develop the products. The third part was about the main topic, the ready meal market and its evolution in each country, to understand how big the market is, what kinds of products exist in the market, and some phenomenon happening now in the market. Next, since the consumer is one of the most important driving factors in product development, the fourth topic was focused on the consumer perspective and was divided into three parts: the target consumer, consumer behavior, and the question 'Do the consumers care about the packaging of ready meals?' This last part of the chapter led to the fifth topic to introduce ready meal packaging and its evolution, which was seldom mentioned in the existing literature. For seeking the opportunities and anticipating the future, the final two topics are the trends in ready meals and ready meal packaging.

**Table 4. Interview Questions**

Topic	Main Question
<b>Servings and portions</b>	<p>What is the percentage of the ready meals for one serving?            What is the average weight for one serving?            How and why do you decide the amount of the servings and the portions?</p>
<b>Distribution</b>	<p>What are the distribution channels of ready meal products?            Which is the main channel?  <b>CVS in Taiwan and China</b>  <i>How has CVS in Taiwan developed ready meals and its packaging?</i></p>
<b>Ready meal market and its evolution</b>	<p>Do you know how ready meal developed from the past to now?            Do you think the development of frozen and chilled ready meals in China will be similar to that in Taiwan? Why?            How has the ready meal developed in the convenience stores? Is the ready meal market growing? Why?            What kind of ready meal products exist in the market?            What are the main categories of ready meals?            The ratio between Frozen and Chilled? What are the advantages and disadvantages of each? Will it change in these few years?            Since the chilled ready meal is growing, do you think it will affect the ready meal?            How many percentages of the ready meal sales compared to the total sales in the stores?            Which is the main ready meal brand, private brand or national brand? Will it change in these few years?</p>
<b>Consumer perspective</b>	<p><b>The target consumers</b>            Who are the main consumers buying those ready-to-eat products? Or does it depends on whether the frozen or chilled one?  <b>Consumer behavior towards ready meals</b>            In what situations do the consumers consume the product? ? Do they buy the same kind of products?            Do you think they will be willing to try some new products? Or will they stick to the old ones? Do you think consumers will be willing to pay more?            Do you think the consumers have different preferences between frozen and chilled ready meals? Why?  <b>Do consumers care about the packaging of ready meals?</b>            Do you think the consumers care about the packaging of ready meal products? If yes, what are their concerns?</p>
<b>Ready meal packaging and its evolution</b>	<p>Have you ever change the packaging of ready meal product? What were the other packages before?            Could you tell me how has the ready meal packaging developed through time?            What are the existing ready meal packages?            When you talk about ready meals products, will you first consider about tray-sealed packaging or other kinds of packaging?            Which kinds of the products can the tray-sealed packaging be used on?            Is there any new kind of ready meal packaging? What is it? What is the difference and why do you want to change it?</p>
<b>Trends of ready meal</b>	<p>What do you think the trend of ready meals will be?</p>
<b>Trends of ready meal packaging</b>	<p>Have you seen any new kinds of packaging in ready meals?            What do you think the trend of ready meals packaging will be?</p>

# 3. Theoretical Framework

## 3.1 Definitions

Definitions of ready meals and related products differ. There have been different attempts to define it, but until now there is no single strict definition of the word “ready meal.” In this section, the definitions of related terms, such as convenience food, home meal replacement, prepared food, ready meals, ready to eat, frozen food, and fresh food, are discussed.

### 3.1.1 Convenience food

One of the earliest and most recognized definitions of convenience food is from Traub and Obland (1979):

“Fully or partially prepared foods in which a significant amount of preparation time, culinary skills, or energy inputs have been transferred from the home kitchen to the food processor and distributor. Soft drinks, dry snacks (crackers, chips, etc.), and ready-to-eat cereals are also included in this definition, even though they usually have no home-prepared counterpart.”

Later, Capps, Tedford and Havlicek (1985) classified convenience foods into three categories: basic convenience, complex convenience and manufacture convenience. In this case, ready meals, as considered in this report, is classified as complex convenience. The complex convenience class embodies multi-ingredient prepared mixtures and foods that represent high levels of time-saving and/or energy inputs savings as well as culinary expertise built in (Capps, Tedford & Havlicek, 1985). Forbairt (1998) (cited in De Boer et al., 2004) defines them as “all products which have undergone secondary processing including ready meals, processed meats, pizzas, pies, savory products, ice-cream and confectionery products, dairy desserts, soups and other prepared consumer ready products.” According to the Institute of Grocery Distribution, IGD (2002)(as cited in De Boer et al., 2004), convenience foods are increasingly based around ‘meal solutions’ with “the aim to make consumers' lives easier when choosing and preparing meals”. Despite a lack of consensus about the definition of convenience foods, the common element of convenience foods is that they can minimize preparation, cooking and cleaning-up time (De Boer, McCarthy, Cowan & Ryan, 2004).

In China, Jin (2011) also defined convenience food as the food products made from industrial massive processing that can be consumed directly or by little preparation.

### 3.1.2 Home Meal Replacement (HMR)

Grier (2001) pointed out in the market analysis report that:

“The Food Marketing Institute (FMI) in Washington, defines HMR narrowly in its Glossary of Supermarket Terms as “foods prepared in a store and consumed at home or in-store which require little or no preparation on the part of the consumer.” Others have

defined HMR more broadly. For example, Jim Reynolds of the Beef Information Centre defined HMR as "any product with a convenience or added value component."

According to Costa, Dekker, Beumer, Rombouts and Jongen (2001):

Home meal replacements are meal solutions that have been produced away from home for in-house consumption. According to our understanding they are defined as:

“Main courses or pre-assembled main course components of a meal — a protein (animal or plant), a carbohydrate (starch) and a vegetable source —, in single or multiple portion containers, designed to fully and speedily replace, at home, the main course of a home-made main meal.”

Moreover, Costa et al., (2001) classified HMR into four different conveniences (Table 5).

**Table 5. Four convenience classes for an HMR classification system (Costa et al., 2001)**

Convenience class	Description	Examples of commercialised products
Ready to eat (C1)	HMR consumed as purchased, requiring no prior preparation	Chilled sandwiches and salads, chilled pies, canned salads, take-away main courses and snacks
Ready to heat (C2)	HMR requiring only mild heating <sup>a</sup> before consumption (includes products processed up to a stage rendering them fit for immediate consumption after thawing or warm water addition)	Chilled pizzas and other main courses, frozen pizzas, frozen main courses and snacks or soups, dehydrated soups and spaghetti dishes, canned soups and main courses.
Ready to end-cook (C3)	HMR requiring sufficient heating <sup>b</sup> to finalise cooking before consumption.	Chilled and frozen lasagne, some frozen menus, dehydrated pasta dishes.
Ready to cook (C4)	HMR that have been minimally prepared for cooking (trimmed, shelled, peeled, cut, washed, etc.) but still require full cooking of some or all of its components.	Frozen seafood paella, raw chilled meat or fish cuts with side dishes, raw frozen fish cut with breadcrumbs and vegetable sauce.

<sup>a</sup> ≤15 min in a pan, or ≤20 min in a conventional oven/*au bain marie*, or ≤10 min in a microwave oven.

<sup>b</sup> > 15 min in a pan, or > 20 min in a conventional oven/*au bain marie*, or > 10 minutes in a microwave oven.

Besides, in China, Home Meal Replacement (新型家庭餐) encompasses any purchased meal component prepared or packaged outside of the home, which is brought or delivered to the home or take-away (Chang, 2006).

### 3.1.3 Prepared food

調理食品, translated in Taiwanese means “prepared food,” while in China, translated as “adjust-managed food” (Feng et al., 2006). Both of them have the same meaning which is agricultural products, livestock products, or fishery products as raw materials to be processed, prepared and packaged, then stored and sold at frozen (below -18°C), refrigerated (below 7°C), or ambient temperature, and that can be consumed directly or only need easy processing or heat treatment before consuming (Hsu, 1999 and Feng et al., 2006).

### 3.1.4 Ready meal

According to ACNielsen (2006), ready-to-eat meals were defined as frozen or fresh, hot or cold, fully prepared meals purchased in a store to be eaten elsewhere. They aren't the same as take-away and fast food, and they aren't canned food. After, in the research of Harris & Shiptsova (2007), is stated that:

“Ready meals can be defined as meals that include meat, poultry, fish, seafood, pasta, and vegetable dishes and can be classified as traditional, continental, ethnic, vegetarian, and low-calorie. These are also products that have had culinary or recipe “skills” added to them by manufacturers that result in a high degree of readiness, completion, and convenience. These types of products can be divided into five different categories: canned, ambient, frozen, chilled, and dry.”

Moreover, another market research company, Euromonitor (2013), has categorized ready meals as follows:

“This is the aggregation of canned/preserved, frozen, dried, chilled ready meals, dinner mixes, frozen pizza, chilled pizza and prepared salads. Note: Ready meals are products that have had recipe "skills" added to them by the manufacturer, resulting in a high degree of readiness, completion and convenience. Ready meals are generally accepted to be complete meals that require few or no extra ingredients, however, in the case of canned/preserved ready meals, the term also encompasses meal 'centres'; for dinner mixes, the term encompasses part meals. Some ready meals may require cooking; others may simply need reheating, prior to serving.”

Ready-to-eat meals (or ready meals) can be broadly defined as complex assemblages of precooked foodstuffs, packaged together and sold through the refrigerated retail chain in order to present the consumer with a rapid meal solution (Spencer, 2005).

### 3.1.5 Ready to Eat

In Commission Regulation (EC) No 2073/2005 (2005), the definition of Ready-to-eat food is, food intended by the producer or the manufacturer for direct human consumption without the need for cooking or other processing effective to eliminate or reduce to an acceptable level micro-organisms of concern.

### 3.1.6 Fresh food

The initial definition of Fresh Food (鮮食) referred to “Foods to Go” that are sold in the stores in the U.S., for instance, 7-Eleven U.S. called sandwiches and desserts “Fresh Foods.” Fresh Food in Japan means take-out food (中食), which means the producer is away-from-home, the producing place is also away-from-home, but consuming takes place at home. It also means Home Meal Replacement, HMR, selling delicious, high-quality and convenient meals through different channels such as specialty stores, convenience stores, supermarkets, hypermarkets and department stores while the consuming place is not limited to a specific place. And, the food that is sold in convenience stores is a part of the take-out food category, which is called FF (Fast Food), Delicatessen or Original product (OEM private brand product)(Chen, 2007).

### 3.1.7 Ready meals concerned in this report

Chilled Food Association (2007) has developed a glossary of definitions, and some are used in this section (Table 6).

To summarize in this section, the relationship between the definition of each term and the concept of ready meals is discussed in order to indicate clearly and more specifically what is included in this research and the definition of ‘ready meal’ that is concerned in this study.

**Table 6. CFA Glossary of definitions (Chilled Food Association, 2007)**

Definition	Source	Source context: Industry/legal/International Standard	Note
<b>Convenience food:</b> pre-prepared food widely available through supermarkets and other retail outlets, which provide a convenient alternative to home-cooked or prepared food, requiring minimum preparation normally sold prepackaged, e.g. sandwich, recipe dish, bagged salad	CFA Defs WG and CFA Comms WG	Industry	
<b>Ready-to-cook (RTC) Food:</b> food designed by the producer or manufacturer as requiring cooking or other processing effective to eliminate or reduce to an acceptable level microorganisms of concern before human consumption.	CFA Defs WG based on CFA GL4	Industry	
<b>Ready-to-eat Food:</b> food intended by the producer or the manufacturer for direct human consumption without the need for cooking or other processing effective to reduce to an acceptable level or eliminate microorganisms of concern.	EU 2073/2005	Legislation	BRC/CFA MCR Guidance: RTE means food Intended and labelled [proposed amendment not yet incorporated into the Guidance] by the producer or the manufacturer for direct human consumption without the need for cooking or reheating. For example, ready meals labeled to be reheated are outside the scope of the Regulation. Smoked salmon, sandwiches and products not requiring such processing prior to consumption are within the scope of the Regulation.
<b>Ready-to-reheat (RTRH) Food:</b> food designed by the producer or manufacturer as suitable for direct human consumption without the need for cooking, but which may benefit in organoleptic quality from some warming prior to consumption.	CFA Defs WG based on CFA GL4	Industry	
<b>Ready meal:</b> a generic term for savoury foods eaten hot, also called a ‘recipe dish’ or ‘meal centre’	CFA Defs WG	Industry	

Sources:

CFA/BRC MCR Guidance: Guidance on the Micro Criteria Regs, 2006 (v1.2)

CFA Comms WG: Terminology developed by CFA’s Communications WG

CFA Defs WG: CFA Definitions WG

CFA GL4: 4<sup>th</sup> edition CFA Best Practice Guidelines for the Production of Chilled Food

De Boer et al. (2004) have pointed out that convenience foods shares common elements such as minimizing preparation, cooking and cleaning-up time, so ready meal is just a kind of convenience foods that falls on the category of complex convenience according to Capps, Tedford and Havlicek's (1985) study.

The definition of ready meals used for the sake of this paper falls close to the classification of HMR given by Costa et al. (2001) which is 'main courses or pre-assembled main course components of a meal,' yet nearly no focusing in ready to eat class.

Ready meal can be a category of prepared food (調理食品), because prepared food contains all agricultural, livestock, and fishery products. But, meal solution is just only a kind of them.

The definition of ready meals or ready-to-eat meals is similar to what this study has considered, but the category of canned and dried ready meal should be excluded in this paper.

Ready to eat is the only term listed in the legislation that has similar definition to ready meals, and it can be a kind of ready meal that we have discussed in HMR.

Ready meal can also be a kind of fresh food (鮮食), a term created by Japanese and widely used in Taiwan CVS industry, because it encompasses more than meal solutions, including fruits, desserts, side dishes, snacks, etc.

In short, as mentioned in the delimitation, the ready meals research will be focused on ambient, chilled, and frozen ready meals for single serving with tray-sealed packaging excluding salad, soup, sandwich, pizza, and canned ready meals. Therefore, the concept of ready meals used in this research falls under the categories of convenience food, prepared food (調理食品), and fresh food (鮮食), and it is similar to the definitions of HMR and ready meals.

## 3.2 Multivac

Multivac is one of the leading suppliers of packaging solutions in the world. Their product area includes thermoforming packaging machines, traysealers, vacuum chamber machines, belt-fed chamber machines, labellers, quality control systems and automation solutions. Thermoforming and traysealing are the techniques applied on ready meal packaging. DARFRESH<sup>®</sup> packaging system has been created in the collaboration with Crayovac<sup>®</sup>, a subsidiary of Sealed Air Corporation. DARFRESH<sup>®</sup> is a vacuum skin packaging system providing several alternatives for ready meals: the standard thermoformed pack sealed with a top skin film; the tray or bowl packed in a thermoformed flexible base web and skin sealed; DARFRESH<sup>®</sup> 3-Web; and finally, Crayovac<sup>®</sup> Simple Steps<sup>™</sup> for microwave applications, offering ready meals in distinctive and appetizing packs (Multivac, n.d.).

### 3.3 History and Development of Ready Meal and its Packaging

The history of ready meal described below has mainly happened in the United States and UK. Excluding jars, canned food, and dried food, there are some studies and articles (Moran, 2005, Independent, 2009 & Winterman, 2013) describing the history of modern ready meals as follows. Inspired by the food tray packaging that airlines used to serve, an American company, Swansons, launched the first ready meal for home consumption after Thanksgiving in 1953. Frozen turkey with giblet gravy, peas and sweet potatoes, all those traditional American components, were placed in a divided aluminum tray and packaged in a TV picture printed box, representing the concept of eating while watching TV, hence how it got its name: TV dinner. The product was a huge success in the first year with 10 million meals reportedly sold. In following years, late 1960s and early 70s, the ready meal market in UK started to grow, because the domestic freezer became common and the family lifestyle changed, thus people started to care about convenience. Frozen food took off from the mid-70s to the early 80s. Then, the target consumer became single men due to the increasing divorce rate, so ready meals became attributed to loneliness and the quality was also questioned by the huge difference between the appearance of the beautiful picture printed on the box and the actual brown junk meal inside. In 1979, Marks & Spencer totally turned the side of ready meals and satisfied consumer needs by launching chilled ready-made chicken Kiev, creating the middle-class market for this kind of “recipe dishes.” Besides, the improvements of stock control and a faster distribution and response by supermarket own brands to the changes in lifestyle and attitudes, plus the increasing household possession rate of microwaves, contributed to the expansion of chilled ready meals market during the 80s. Health awareness kept growing in the 90s resulting on chilled meals marketed as premium ranges targeting the “cash-rich, time-poor” professionals who are willing to pay more for convenience with quality. Labels and packaging started to change, with distinctive graphics, seductive images, color-coding and statement attributes such as “fresh”, “slow-cooked” and “restaurant.” Quality is still the main focus nowadays. Food companies even cooperated with restaurants to enhance the dishes attractiveness while promising a fine dining experience. Since people wanted to do more than heating up the meals, food assembly has been invented, allowing consumers to put the “meal dishes” and “vegetable accompaniments” together on the plate, buy ready-to-cook foods or gourmet meal kits, an activity falling somewhere between microwave instantaneity and cooking from scratch. Until now, ready meals market keeps on growing and developing around the world.

#### *Sweden:*

Some Swedish historical facts in this paragraph related to frozen food and chilled/fresh food can be found in Beckeman’s (2004 & 2006) studies. One respondent (SE-I-2) said that the development of frozen food in Sweden was quickly adopted when frozen food started after the war. First frozen food launched in Sweden was in 1944 by the cooperative, KF, and the next year, Findus also entered with direct distribution (Bäckström et al., 1992, as cited in Beckeman, 2004). In the 50s, convenience foods became popular coinciding with the golden years in economy. Vinborg’s Ättiksfabrik introduced frozen prepared food in 1950, and Felix joined the frozen food sector in 1956. After, in 1960s,

Dafgård frozen prepared food for catering and retail came on the market along with many others. Shrink film for palletizing was available since then. Additionally, between 1967 and 1968, 25 % of all households had a freezer and 88 % had a refrigerator. Frozen pizza was launched in the 70s, and chilled prepared food in the 80s. At the same time, microwave oven became popular. With women working less in the household and coming out to work it came a need for prepared food. For instance, in Stockholm, two-third of the households are formed by 1-2 persons resulting on the increased need of ready meals in Sweden (SE-I-2). Another fact is that, since 1990s, tax authorities in Sweden stopped subsidizing lunches at the work place, which is also a reason why ready meals have grown (SE-I-2). From 1990 to 2002, the trends in this segment were "less" processing, "fresh" products, functional food & ingredients, low fat and specialties (Beckeman, 2004).

#### *Taiwan:*

Fifteen years ago, CVS in Taiwan started to sell hot food products like hot dogs, steamed buns, and oden<sup>2</sup> which are considered to be snacks. After that, the 18°C products category was launched due the popularity and promising sales of sushi and onigiri<sup>3</sup> products in 7-Eleven Japan, so 7-Eleven Taiwan decided to introduce them as well. However, at that time, Taiwanese consumers were not used to have cold bento<sup>4</sup>. Meanwhile, the frozen products were developing, but not that many companies were working on it, moreover, the cost was too high, even higher than the price in the market, so it didn't became the main stream. In 2000, "National Bento" (國民便當), claimed that a bento containing rice with seven dishes cost 38 NTD (around 1 Euro), which made the consumers think that it is possible to buy a meal from convenience stores, and it brought up the sales of 18°C products starting the ready meal business in CVS. Since the consumers can accept 18°C products, CVS began to introduce 4°C products due to the fact that it is safer, the choices of the ingredients and dishes are more varied, and the lower logistic cost because 4°C products can be distributed with other cold beverage and dessert products. Around three years ago, frozen ready meals started to grow in the market as chilled products have a short shelf life and the companies had the pressure of discarding the expired products. Now, there is a group of people in Japan and Taiwan developing ambient ready meal products that still keep the taste and texture after sterilization, but the interviewees think that this kind of products will only substitute a small part of the market because the consumers will still consider chilled ready meals as fresher (TW-R-2 & TW-R-3).

#### *China:*

Ready meals in China are still in their beginning phase, hence no history and development can be described in this section. The current situation will be elaborated and discussed later in the results. According to Euromonitor International (2012a), 91.27% of the volume and 81.0% of the value of ready meals sales in China in 2012 is represented

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<sup>2</sup> Oden: a traditional cold-weather snack - is a very simple stew made by simmering fish cakes, fried tofu, and vegetables in a kelp-based stock for hours on end. (Retrieved from [http://bento.com/re\\_oden.html](http://bento.com/re_oden.html))

<sup>3</sup> Onigiri: it is also called rice ball, is a Japanese food made from white rice formed into triangular or oval shapes and often wrapped in nori (seaweed). (Retrieved from <https://en.wikipedia.org/wiki/Onigiri>)

<sup>4</sup> Bento (便當) is single portion meal contains rice, fish or meat, and some side dishes, usually in a box-shaped container.

by canned/preserved ready meals category, which is not included in the focus on this study. This happens because the other categories like chilled ready meals and frozen ready meals are still not developed in China, which can be noticed by comparing the population of Taiwan and China with the sales of ready meals. In 2012, the population of Taiwan was 23 million, and the population of China was 1.3 billion, 58 times larger than Taiwan (Euromonitor International, 2013c). But, in 2012, the retail value of ready meals in China was US\$1058 million while in Taiwan, it represented US\$ 899 million; which in volume represented 606 thousands tons for China, and 169 thousands tons for Taiwan (Euromonitor International, 2013b).

## 4. Results

As mentioned in the methodology, the results are from the primary data of the interviews and the secondary data from the literature, reports, statistics, and online resources. The outline of the results (Table 7) followed the same order of the induced topics from interview questions (Table 4), and in each section, it was categorized into different countries, which are Sweden, Taiwan, and China.

From Euromonitor International's (2013b) statistics, 91.3% of the total sales volume in China ready meals market is from canned/preserved ready meals, which are not included in this research; also, these canned/preserved ready meals are not meal solutions, as they are usually only for breakfasts or snacks. In addition, from both the statistics (Euromonitor International, 2013b) and the interview (TW-R-3), it has been shown that frozen and chilled ready meals for meal solution in China has just started to grow, thus there is quite limited information of the Chinese ready meals market.

**Table 7. The arrangement of the sections in the results**

Research Topic	Section number in the results
Servings and portions	4.1
Distribution	4.2
CVS in Taiwan and China	4.2.1
Ready meal market and its evolution	4.3
Consumer perspective	4.4
The target consumer	4.4.1
Consumer behavior towards ready meals	4.4.2
Do consumers care about the packaging of ready meals?	4.4.3
Ready meal packaging and its evolution	4.5
Trends of ready meal	4.6
Trends of ready meal packaging	4.7

### 4.1 Servings and portions

*Sweden:*

Euromonitor International (2013a) pointed out that there is a significant impact on eating and food shopping habits by the growing single-person households in Sweden, such as increasing small pack sizes available to accommodate single shoppers. The packaging of single serving is the most common among ready meals (SE-I-1). In one of the biggest companies producing frozen ready meals, approximately 90% of the volume is for single-serving products, because in a family, it is usually expected to have cooked meals, and thus ready meals are not an appropriate choice to feed the family; however, "When you only eat on your own – you have only yourself to 'stand up for'" (SE-F-1). In 2010, the retail group ICA launched Ica To Go, a line of strongly focused single-portion ready meals targeting on-the-go, urban consumers through a convenience store concept (Euromonitor International, 2013b).

However, 10 years ago, SE-I-2 predicted that there will be more ready meals for two people, and it is currently developing, but on a very slow pace (SE-I-1).

The portion size has been decided by the nutrition, taste, appearance on the plate and cost in the frozen ready meal company (SE-F-1). There is a concerning issue in portion mentioned by one respondent (SE-N-1), food waste; the need of one portion is varying between a young men and an old man, so choosing the right portion size is an important part for minimizing the food waste.

#### *Taiwan:*

It is mostly single serving packages available in the retail market, but ready meals for families were launched before, although it is still not the mainstream option (TW-I-1). Portions differ between the target consumers, so there are some considering points, for instance, gender: for females, the portion is smaller than those for males. It is determined from some simple estimation; for instance, if there is a product targeting male consumers, its portion will be bigger and the flavor will be 'stronger,' and if it's designed for females, the portion will be smaller and the flavor will be lighter (TW-R-2). Euromonitor International (2013d) also reported that since manufacturers launched a lot of individually portioned ready meals to meet the demands of single consumers or small households, consumers do not need to worry about leftovers, which is one of the reasons why the ready meals sector knocked stronger current value growth in 2012 than 2011.

In the ready meals from one of the CVS companies, the portion of breakfast for a single serving is around 100-130g, and for lunch meal it will be between 350-500g (TW-R-2).

#### *China:*

In general, the regular meal portion in China is bigger than the regular one in Taiwan. Although the ready meal now in China is consumed as a supplement to the actual meal, the portion size of the products is nearly the same as the normal size for single serving in Taiwan (TW-R-3).

#### *Others:*

The report in Packaging News (2012) cited Mintel Oxygen global packaging analyst Benjamin Punchard, saying that over 51% of new prepared food products launched in the UK in 2012 to date is in single serving sizes. It also quoted Loyd Grossman Sauces brand manager Elliot Harris, saying "Data shows that there is growth in single person meal occasions. These are not just people living alone, but families that eat at different times due to busy and hectic lifestyles."

In addition, Church (2008) made a research on the trends in portion sizes in the UK. In ready meals, it is more obvious that the trends are for individual servings. An evident increase for several dishes was seen, particularly beef lasagna (from 250g in 1990, 290g in 1993 to 320g to 500g in 2008) and pasta ready meals (from 235g in 1993 to 400g to 430g in 2008), where the change was across all brands. Another trend is that small portions were being introduced (e.g. Asda mini classics, 'a complete meal for the small appetite or a light snack for those in a hurry'). It often enables not only better portion suitability but also a higher level of convenience to both the aged and single household

consumer groups, and there is also a wide consumer base of mid- to high-purchasing power to tap into (Euromonitor International, 2012b).

## 4.2 Distribution

### *Sweden:*

According to the frozen ready meal producer (SE-F-1), the main distribution of their products is with Dagligvaruhandeln, DVH (in English, Retail Industry), and over 90% is the market for FMCG (Fast-Moving Consumer Goods) products.

Euromonitor International (2013b) has statistics in the ready meals section. It stated that in 2012, the main channels are still the supermarkets and hypermarkets with 53.9% of the total retail value from supermarkets and 24.1% from hypermarkets.

### *Taiwan:*

In 2013, in Taiwan, 84.5% of the retail sales of ready meals were sold in convenience stores, 7.5% in supermarkets and 7.2% in hypermarkets (Euromonitor International, 2013b). Another Euromonitor International (2013d) report said that convenience stores dominate ready meals, driving consumers' interests to purchase from this channel with the microwave facilities in stores; on the other hand, supermarkets and hypermarkets are largely the key in the distribution of frozen ready meals.

One respondent, (TW-R-1) pointed out a difficulty in distribution of chilled ready meals, which is that some kinds of products are only produced from few factories around the countries, meaning they take a longer time to transport, which may compromise the self life and freshness.

### *China:*

Euromonitor International's (2013b) statistics for ready meals is not that reliable for this research in China since it includes canned/preserved ready meals which is 91.3% of the total sales volume in the ready meals market.

As one respondent (TW-R-3) observed, ready meals are mainly selling in both supermarkets and hypermarkets in China. In the supermarkets, there is no chilled ready meal, but in the hypermarkets, ready meals are available in certain kind, such as bento<sup>5</sup>, which is assembled in the stores. There are also some chilled ready meals in foreign investment CVS, but there are no ready meals available in local investment CVS.

### 4.2.1 Convenience stores (CVS) in Taiwan and China

According to Euromonitor International (2013), the distributions of the global sales of ready meals in 2012 are, 46.3% from supermarkets, 22.2% from hypermarkets, and 11.5% from convenience stores. Compared with the retail sales in Taiwan in Table 9 below, it can be seen that there is a huge difference in the distribution channels globally

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<sup>5</sup> Bento (便當) is single portion meal contains rice, fish or meat, and some side dishes, usually in a box-shaped container.

and in Sweden. The main channel in Taiwan is convenience stores but in the others, it is supermarkets and hypermarkets. Therefore, in this section, the main channel in Taiwan, convenience stores, is discussed, as well as the CVS industry in China, because the Chinese ready meal market is expected to grow with the convenience stores by referring to the similar path of Taiwan, as has been stated from the interviews and existing literature.

**Table 8. Retail sales in 2012 in global, Sweden and Taiwan  
(Intercepted from Euromonitor International, 2013)**

	Global	Sweden	Taiwan
Supermarkets	46.3%	53.9%	7.5%
Hypermarkets	22.2%	24.1%	7.2%
Convenience stores	11.5%	5.9%	84.5%

In 2012, in Taiwan, the top 3 ready meal brand shares are all convenience stores' private brands: 70.7% retail value from 7-Eleven, 15.4% from Family Mart, 3.6% from Hi-Life, and the sum of them reached 89.7% of total retail value (Euromonitor International, 2013d). Thus, in this section, the research went deeper into the CVS in Taiwan as well as the development of ready meals in the CVS.

*Taiwan:*

According to the interviewee from the top three CVS company (TW-R-2), ready meal development is related to the structure of CVS in Taiwan. The fresh food product development department is part of the marketing unit. In the marketing unit, there is product department for national brand products, cultural product department for magazines and books, e-commerce department for pre-ordering and online shopping, and fresh food product development department for fresh food products. In the other two main CVS companies, they also have a similar structure, and there is also a fresh food product development department, although not exactly with the same names. In the department, there are different teams, including purchasing (who communicates with cooperating companies) and packaging designing. The CVS company has a strategy alliance with their ready meal factory, they develop the products and their packaging together, but the final decision is still with the CVS company.

*How has CVS in Taiwan developed ready meals and its packaging?*

One respondent (TW-R-2) pointed out that when developing the products, one of the main points is to seek for mass-oriented taste; then, they will decide the category, which means the portion size, and whether it is for single or multiple serving. When these are all set, they will research on specific special ingredients. One of the strategies used in one respondent's (TW-R-1) company is weather marketing, since the consumers have different food preferences depending on the temperature in different weathers and seasons, and these are reflected on their purchasing decisions. It is therefore important for the company to launch different kinds of products according to the season. For example, there are cold noodles in summer, during winter, noodles with soup is launched.

From the interviewees (TW-R-1 & TW-R-2) in two of the top three CVS companies, the general development procedures are summarized as follows: the products are categorized, some research is done using their POS (Point of Sale) system and from market research companies, then it is determined if there are new kinds of products in the Japanese market or in other countries' markets. Then, the CVS company discusses with the R&D department in the cooperated OEM (Original Equipment Manufacturer) to do some trials, and the CVS company will make the final decision whether they will produce and launch the product

Companies have entrusted ACNielsen to provide the market information every certain period, and most of the time, the key person is encouraged to go directly to the stores to observe the actual consumers and talk with the staff. The companies also have a huge database from the POS system installed in every store, which can provide the information of time, shopping district, age, and gender to have some data on consumer behavior, although the responsible people have to analyze these by themselves. The business of ready meal and fresh food in CVS has already been in existence for more than 10 to 15 years, so the companies have a database of product sales to know the preferences of the different type of consumers (TW-R-1 & TW-R-2).

One respondent (TW-R-2) said that when developing this kind of products, the most important concern is food safety. In quality control, the products are usually checked for two microorganism types, E. coli and coliforms. Some ingredients, like seafood, contain more bacteria than others, so it is not suitable to be used in products stored in 18°C or 4°C. The microbial aspect of food safety is the main restriction when choosing the ingredients.

When developing new products, besides flavor and food safety, it is important to aim for effort-savings for the staff in the stores and labor-savings in the factory, such as by changing into tray-sealed packaging, for instance. Sustainability and environmental protection is also considered as a factor (TW-R-1).

From the packaging aspect, when the R&D people are developing a new product, the project is executed with the packaging team at the same time. They also have discussions with the packaging supply chain to get information that may be useful in packaging development. Sometimes, new packaging technologies of packaging companies are learned from Japan. The development of packaging is also discussed with the OEMs. There are two needs in packaging, one is the need from CVS to packaging companies, the other one is when packaging companies have a new technology or equipment that they want to recommend to their customer; thus, this is a two-way interaction (TW-R-2). Most of the time, however, the CVS companies explain their need to the packaging company for the solutions (TW-R-3).

According to one interviewee (TW-R-2), the company launches 20 fresh food products every month. After launching, it will have a three-month observation period, with the company making a decision every month about which products should be removed and which can be continued. The average standard time of developing a new product is around 3 to 6 months. If the product is more difficult to develop, or if the consumer group is larger, it might be prolonged to 6 to 12 months; on the other end, a product can have a development timeline that is as short as around 2 months (TW-R-2 & TW-R-1).

*China:*

The following information in this section was provided from the interview with one respondent (TW-R-3).

The CVS industry in China can be divided into two kinds: from local investment and foreign investment. Local investment CVS are stores that are run through franchising, and earn their income from sales profits and the distribution fee. As for foreign investment CVS, they run direct stores (i.e., not franchised), but since it hasn't reached economy scale yet, it is still profit deficit.

The convenience store companies from foreign investment are: 7-Eleven Shanghai (run by 7-Eleven Taiwan), 7-Eleven Guangdong (run by Dairy Farm International in Hong Kong), 7-Eleven Beijing (run by 7-Eleven Japan), Family Mart from Ting Shin, and Lawson from Lawson Japan. The cost is high to develop at the coastal urban area, the first-tier cities where most foreign investing companies are, so it is better to develop the business in second-tier or third-tier cities.

Due to certain policies in China, only local CVS can sell cigarettes and alcohol; foreign investment CVS are not allowed to sell them. Although 90% of cigarettes and alcohol are domestic brands and the profit is quite low, cigarettes and alcohol are considered the 'immediate need' products that affect the customer flow and indirectly affect the sales between local CVS and foreign CVS, since the customers buy some other products when they are buying cigarettes. Because of this, foreign CVS put a lot of focus on ready meals and hot food products to differentiate their market versus local CVS to increase their sales.

Now, local expanding CVS all think that there are opportunities to develop ready meals markets after visiting US, Japan and Taiwan. Still, there are some problems and difficulties in technologies and food safety, such as replenishment in the stores, suppliers' processing techniques, raw material resource safety, and price acceptability of the consumers. Compared to Taiwan, which has already been involved in fresh food industry for 15 years, the respondent thinks that China needs around 5 years to evolve to the same level. The difficulty of the replenishment in the store occurs because there are no open display refrigerators and normal refrigerators in the stores, so the beverages are put on the shelves. The average weather temperature is low, so the need for cold beverages is relatively low. In the case of the suppliers' processing techniques, the company doesn't know how to produce chilled ready meals or fresh foods without using additives. Besides, the distribution and the cold chain management are not yet that well-handled and established.

Sometimes the people from Taiwan CVS will go to China to give ideas and discuss experiences, believing that the China CVS and ready meal industries have a high possibility of following the similar development path of Taiwan. Besides, there are a lot of researchers (Zhou, 2003, 2007a & 2007b, Zhong, 2004, Lin, 2005, Liang, 2009 & Fang, 2010) in China referring to Taiwan CVS industry, and also pointing out that China CVS should develop ready meal products as their main commodity in order to gain more profits and to differentiate themselves from other companies and supermarkets.

### 4.3 Ready Meal Market and its Evolution

*Sweden:*

According to Euromonitor International (2013e) Report, the sales of ready meals in 2012 in Sweden reached SEK6.8 billion (EUR784 million) with current value growth of 1%. The volume sales declined by 1%, and the average unit price rose by 1%, with an expected constant value of 1% over the period of 2012 to 2017.

All the interviewees from Sweden agreed that frozen ready meals are the biggest category among all the ready meals in Sweden. From the Euromonitor International (2013e) report, it showed that the value sales of frozen ready meals in Sweden is SEK3.3 billion accounting for a 49% share, and the chilled ready meals reached SEK893.8 million with a 13% share. In Sweden, there are more frozen ready meals than the other kinds, due to the vast and scarcely populated country causing delivery difficulties (SE-F-1), as well as the early adoption and the coverage of freezers and microwave ovens (SE-I-2).

One of the main reasons why the sales of ready meals increased in 2012 was that over the last few years, the three leading companies, Findus Sverige, Gunnar Dafgård and Procordia Food, have all successfully reduced the number of additives and E-numbers in ready meals and communicated this to their customers to repair the negative image of frozen ready meals.

One respondent (SE-I-2) indicated that frozen ready meals have been abundant in the market, but they will not further increase that much because of their negative image which is still in people's mind. As Euromonitor International (2013e) reported, chilled ready meals are considered to be fresher and more convenient alternatives to frozen options in general. Also, discounted offers were more common in frozen ready meals than in chilled, since consumers tend to be less sensitive to the price of chilled ready meals. The interviewee also thinks that people get surprised at how good the quality of frozen ready meals is nowadays, and you can also see food producers using a lot of advertisements.

There is a considerable price difference between the two so people with a smaller budget will buy frozen meals (SE-R-1). The respondent (SE-P-1) argued that price pressure in frozen ready meals is much higher, since they are very cheap. The price has increased these 2-3 years because the quality is much better than before, but the price is still too low for some producers. The respondent also mentioned that normally Swedish people like to compare the price more than quality, so it will take time to change. He thinks that the frozen products will always be there for the reason that the quality is good, with an extremely long shelf life, and much better than canned food. From another aspect, chilled ready meals have almost the same price as the meals in restaurants, so if the quality is the same, then the chilled meals actually are more valuable due to the fact that you can have them anytime and anywhere you want; some people are willing to pay for this. However, right now, as (SE-P-1) said, the three major ready meal brands, Felix, Findus, and Dafgård, are still not interested in working on chilled ready meals. It is probably because of what one respondent (SE-I-2) said, that compared to frozen ready meals, chilled ready meals production is smaller. It can't produce a big batch at once, the price is very

expensive, and also the shelf life is much shorter as they only last for a week. Since it can't be kept long, a retail shop owner even said that it is better not to get the delivery, and so he won't lose money.

Some other aspects from the interviewees were also collected and organized. The interviewee (SE-I-2) pointed out that there is a great variety of choices in frozen ready meals, with many kinds of international cuisines like Chinese, Thai, Indian, etc. having been introduced, and increasing people's interest in these products. For example, it was a great success when Felix launched their line of Indian food in their ready meal products. Recently, a French frozen food operator, Picard, has established two stores in Stockholm, providing a new possible segment and market by showing different types of very high quality, high price, luxury products. By getting the inspiration from Picard, it might be a chance to put more focus on frozen food now (SE-I-2). Aside from this, a respondent (SE-N-1) mentioned that UK is an very important market that Sweden refers to since it is the leading country of chilled ready meals and one of the biggest frozen food consuming countries. Moreover, from Euromonitor International (2013a), it is reported that convenience and health are the driving demands of many single households, so chilled ready meals is growing in popularity, often containing organic, natural ingredients.

#### *Taiwan:*

According to the Euromonitor International (2013d) report, in Taiwan, ready meals reached NT\$27 billion (EUR687 million) sales with 10% current value growth in 2012, and chilled ready meals also gained the strongest current value growth of 10%; moreover, ready meals are expected to reach constant value CAGR of 4% over the forecast period of 2012-2017. The Euromonitor International (2013d) report also mentioned that the ready meals sector had a stronger current value growth in 2012 than 2011 because of consumers' increasingly hectic lifestyles, also, manufacturers launched individually portioned ready meals to meet the needs of single consumers or small households.

The CVS companies are still developing products in both the frozen and chilled areas since there are still some differences between these and one cannot completely replace the other; however, the chilled category is still the main group (TW-R-1). In the Euromonitor International (2013d) report, chilled ready meals held the total volume share of 91% and the retail value reached NT\$24 billion with also 91% of total share, with its wide availability at convenience stores. On the other hand, frozen ready meals posted the second strongest current value growth in 2012, with manufacturers actively launching new products to attract consumers; on the other hand, the preparation of frozen food takes longer time than the chilled ones which had slower growth in 2012 (Euromonitor International, 2013d).

Moreover, there are both private brands and national brands for both frozen ready meal and chilled ready meal products in the convenience stores; in the chilled area, most of them are private brand products, but among the frozen ready meals, they are mostly national brand products. In recent years, though, convenience stores in Taiwan started to develop private brands in frozen ready meals, realizing that frozen meals can have a longer shelf life (TW-R-1). Now in the Taiwan CVS market, frozen ready meals account for only 10% of the total ready meals, the other 90% is chilled, and within the frozen

ready meal category, the private brand products consist slightly more than 50%. (TW-R-2).

There are almost no available ambient ready meals with noodles, rice or pasta in a tray-sealed packaging in the market, the only kind is in cans, to the best of the interviewee's knowledge. However, the companies are now developing this kind of product as chilled which is dependent on the processing technology and equipment, thus, maybe they will appear in the Taiwan market this year, or next year (TW-R-2). Developing ambient ready meals is desirable, from the viewpoint of saving energy and reducing carbon dioxide emission, because like 18°C products, 4°C products, and frozen products, these kinds of ready meals need equipment and energy to maintain their condition; thus, if these products can be made for ambient temperature storage but with high enough quality and good consumer acceptance, then it can save more energy resources (TW-R-2).

The share of ready meals in total sales all 7-Eleven stores is around 17%, 13-14% in Family Mart, and 12% in Hi-Life. The respondent (TW-R-2) thinks the difference comes from brand effectiveness, because ready meals have been considered as strategic products which differentiate the brand to attract more customers to the stores.

In addition, several facts have also been mentioned by Euromonitor International (2013d): vegetarian meals have been growing in 2012 due to the government's continued push towards healthy living, which made consumers become more cautious with their diet; and convenience stores also put efforts on launching new flavor products to evoke consumers' interest to try them out.

There is another impact happening in CVS right now. In the past, ready meals were considered as a supplemental product; people went to street vendors for their meals, and ready meals were for those people who couldn't find meals at a certain time. It has changes a lot in these two years: the store is getting bigger, CVS 'restaurantize', which means that CVS nowadays not only provide ready meals for the service, but also have a dining area in the stores for customers to have a place to eat the food they bought from the stores (TW-R-2).

#### *China:*

In China, the convenience stores industry is more developed in the big cities in the coastal urban areas (Wang, 2010), such as Beijing, Shanghai, Guangzhou, Shenzhen, and Tianjin.

Now the retail market of frozen ready meals is bigger than chilled ready meals due to food safety concerns (TW-I-1). Comparing the ready meals in the convenience stores in China, the ratio between frozen ready meals and chilled ready meals is almost 1 to 1, but both kinds of products are still really small amounts in the market, nearly non-existent (TW-R-3).

A respondent (TW-R-3) said that most of the ready meal products in China are local brand products and only few are private brand products, and as far as he knows, there is no private brand for ready meals in the local investment CVS. The local brand products are from the local food factories producing chilled and frozen ready meals, which were mainly frozen food factories before, so there are no national brand ready meals nationwide but mainly local factories in every region due to the distribution. In foreign

investment CVS, like 7-Eleven, Family Mart and Lawson in Shanghai, they already have their own factories there for all kinds of ready meal products. So, most of chilled and frozen ready meals exist in the convenience stores from foreign investment, and also in some of the local CVS, depending if there are frozen or chilled ready meal factories nearby or not (TW-R-3).

Meanwhile, the markets are different between the regions, and the key point is the logistics and if the supply chain and cold chain can be well established and managed. Ready meals are still at the beginning stage, and there is still a very big opportunity for it to evolve (TW-I-1).

In addition, the main problems known are logistics, food safety, the cold chain, and the overall supply chain. Another problem is that the position between some convenience stores and supermarkets is unclear and that influences the right kinds of products to be delivered, and this has not been agreed (TW-I-1).

## 4.4 Consumer perspective

Ready meal and its packaging will still follow the demand of the consumers.

### 4.4.1 The target consumers

*Sweden:*

(SE-F-1) and (SE-R-1) both agreed that frozen ready meals are mainly targeted to students and elder people. Another opinion from (SE-I-2) who thinks that the target consumer of frozen ready meals and chilled ready meals are different, considering that office workers and retired people are the main consumers for frozen ready meals; for office workers, it is cheaper and faster if they want to have a quick lunch instead of going to a restaurant. For example, in Stockholm, going to a restaurant for lunch costs around 80 SEK, and one frozen ready meal costs 20 to 25 SEK. It is not easy to prepare a full meal with 20 to 25 SEK. In this tough economy, people will choose to go less to restaurants, and more having ready-made meals for lunch. Plus, in rural areas, there are not that many restaurants. From (SE-P-1)'s point of view, single households in Sweden, especially young working women are willing to pay for the price of chilled ready meals, since they don't want to prepare meals when they go home at 8 pm, and they want something to prepare quickly and good at the same time.

*Taiwan:*

Currently, there are already certain kinds of people who will enter convenience stores, so the target consumer is almost set to which kind it will be (TW-R-1). Most of the ready meal consumers are students and office workers, around 18-45 years old, and then it will be different target consumers due to different products (TW-R-1 & TW-R-2). This is the main target now, but in the future, there might be another group coming, which is elder people, older than 60 years of the age. Now, it is slowly starting the future ready meal products for elders (TW-R-2).

*China:*

The target consumers are also 18 to 45 years old, but the products now are considered as a supplement sales, i.e. supplement for someone who doesn't have the meal at lunch or dinner time, people who want to have some foods between meals, for students after school student before going to private after-school classes (TW-R-3).

#### **4.4.2 Consumer behavior towards ready meals**

*Sweden:*

The customers acquire ready meal products from (SE-F-1)'s company for lunch, and (SE-N-1) pointed out that the ready meal segment is continuing to grow, in spite of people wanting to cook more by themselves at home, so there is a trend in cooking books, Swedes buy more cooking books than ever and new cooking books are released every day. It is because meal solutions such as ready meals do not always have the quality or the content they expected; for example, the horsemeat scandal, where the product has claimed to be beef, but is horsemeat actually. Besides, the interviewee (SE-N-1) also believed that busy working people with less time to cook or wanting something easy to prepare caused ready meals to continue to increase, even slowly, but with a growing importance as it is a good way to meet modern consumers' demands. In the beginning, the consumers thought it is too expensive and with too little nutritional value, probably because the consumers are more demanding when it comes to quality, taste, wide range and easy to warm/low effort to get a good meal in general. Nowadays the price, value, nutritional value, taste, and other aspects are much better in spite of the horsemeat scandal.

In (SE-R-1)'s experience, consumers usually buy the same frozen ready meals, but they show more willingness to try different options when buying the fresh and chilled ready meals, and he pointed out that the people who bought the frozen ready meals went to the freezer in the store to get the product and then check the other kinds at the same time. Another aspect that (SE-P-1) said is that Swedes like to compare prices. Probably because of the market strategy mentioned previously, the price of frozen ready meal is too competitive, so most of the time, price is still more important than the quality, and that is also a reason why chilled ready meal grows slower.

About the choice of the consumers, (SE-I-1) thought that the choice between the categories depends on the occasions, if it's for lunch from work, chilled ready meal is preferable, and if it is buying for the next week, frozen one will be the option. Moreover, both (SE-I-2) and (SE-N-1) mentioned that when it is not frozen, the food is perceived to have higher quality from the customer perspective, and consumers think that 'this is fresh, this is chilled, this is better.' But, the respondent (SE-I-1) mentioned that after preparing the food, the differences between frozen and chilled ready meals are hard to notice, so the stereotype needs to be 'washed away.' (SE-N-1) thinks that this is the challenge for the producer, to get paid for higher value, and (SE-I-1) thinks that in the future, frozen ready meals will focus on certain types of products, and chilled ready meals will focus on the other certain types.

Besides, the respondents (SE-N-1) and (SE-I-1) mentioned in relation to the consumer behavior regarding the horsemeat scandal, saying that it might have caused a little drop

on sales and made people a bit hesitant, still the reaction has been limited among the customers, mostly behaving like before and a statistic even showed that the consumer still bought the same type of lasagna.

Regarding to eco-friendly and fair trade products, (SE-R-1) and (SE-I-2) believed that more people will go looking for it, but if the price is higher, then customers only take a look and still choose the cheaper one; yet, eco-friendly and fair trade products are growing little by little.

*Taiwan:*

From Chen & Tsao's (2006) study, consumers have high concerns on some of the CVS bento properties, which includes '24 hours shelf life,' 'microwave heating needed,' 'CAS quality certificated,' 'variety of side dishes,' and 'HACCP certificated.' And, it is recommended that the related companies can improve the following product properties due to the significant difference between the degree of concerns and satisfaction: 'appetizing from appearance,' 'microwave heating needed,' '24 hours shelf life,' 'different kinds of cooking method,' 'enough portion size of side dishes.'

When CVS launched chilled ready meal and frozen ready meals in the early periods, there was a limiting threshold, because these kinds of products need to be heated by microwave ovens. At first, the consumers refused to use microwave ovens, but after spending a few years on educating and communicating the consumers, consumers knew that microwaving is safe. That is also the reason why the acceptability of chilled and frozen ready meals is higher these recent years.

Regarding if consumers will accept ambient ready meals or chilled ready meals with longer shelf life if there is no change in taste, texture, and quality, the consumers will question if there are any additives or preservatives inside. The doubts from the consumers towards this kind of products were already experienced when the fresh food (chilled ready meals) was introduced to the market. If all the negative things can be overcome with evidence and acceptable arguments, consumer's behavior is easy to change by educating and communicating and at the end, the consumers will accept this kind of products, because it can also solve the convenience and food waste problem (TW-R-2 & TW-I-1).

In addition, only few consumers will notice or have demand on nutritional value of ready meals. As an example, there was a ready meal product claiming that the vegetables inside are fresher and more nutritious but it failed because it is not an evident and direct issue for the consumers. But this issue will still continue to grow in attention (TW-I-1).

*China:*

As the respondent (TW-R-2) can see now, it is very unlikely that ready meals in China will skip all the stages and directly develop ambient ready meals, because unlike Taiwan, there is not a big population dining out. Office workers have 2 to 3 hours lunch break to go back home to cook for themselves, and there is a restaurant nearly in every office. (TW-R-3)

Feng, Fan & Chen (2006) have researched on adjust-manage food (prepared food or HMR) and pointed out that, when choosing the meal solution, consumers' decision is impulsive, and mentioned that another HMR research found out that 48% of people think the cooking time is not enough, 45% have irregular times for having meals, 57% can accept all RTC/RTH/RTE, and the factors for consumers choosing these kinds of products are hygiene, freshness, convenience, price and flavors. The study stated that the consumers' needs are varied, it needs to use tools to position the market, and the researchers predicted that the female market, elder market, school breakfast market, office workers market, and special meals market will be the trends to develop.

#### 4.4.3 Do consumers care about the packaging of ready meals?

*Sweden:*

The consumer's opinions according to the food producer (SE-F-1) are that they care about the packaging, and it has to be nice, appealing for appetite, easy-carrying back home, easy opening, easily discarded and not causing too much waste. Yet, (SE-I-2) said that the consumers care about the packaging if it looks nice, and if it has cavities which looks like a plate, a whole meal, but they don't care that much of the packaging as long as the quality of the food is good or the meal is good; actually, the companies are the ones more concerned about what the packaging can do for the product.

(SE-N-1) also mentioned that easy-opening is an important factor among all kinds of ready meal, especially for a growing number of people having some kind of dysfunctional disorder and have difficulties to handle the packaging due to rheumatism, stroke, or just getting older.

*Taiwan:*

Due to the plasticizer scandal, consumers care about whether the packaging has migration problems, and if the material is suitable for food packaging, but this kind of concerns comes once in a while; besides, the appearance and the design of the packaging have some influence on the consumers (TW-I-1).

### 4.5 Ready Meal Packaging and its Evolution

*Sweden:*

Twenty years ago, in the frozen ready meal company (SE-F-1), the market went from plastic to paper board trays, and (SE-I-2) pointed out that one new innovation came 10 years ago, which was the bowl for soups or vegetable (SE-I-2).

(SE-N-1) described that the packaging for single ready meals can be categorized into different types. On the plastic side, there are pre-made trays and form-fill-seal trays, which mean the pre-made trays were already formed beforehand, only filling and sealing operations happen when producing ready meals. Form-fill-seal is made by thermoforming, with products filled and sealed while supplying both top and bottom web as reels to a thermoforming machine. Concerning the tray packaging for single ready meal it is mainly plastic, another solution is aluminum foil trays normally covered with either carton lids or

plastic lids. Lately, in Sweden, there is rather limit use of aluminum foil trays, contrary to the UK, where this is still a quite big business. In Sweden aluminum foil trays are mainly used in the dishes needing to be heated at high temperature which plastic cannot withstand. If it is a frozen ready meal, sometimes it even can be put directly into a carton box which was more common few years before, but still existing on the market now. And, the third kind of tray packaging solution is molded pulp, which can be created into any shapes including trays, but it is not thermo-formable. A typical example is the egg trays in Sweden, and it also could be applied to ready meals.

Moreover, from (SE-I-1)'s point of view, when saying cook-chill or ready meal, it is mostly related to trays with plastic on the top, like plastic lid or tray-seal. Regarding the shape of ready meal tray packaging, (SE-N-1) summarized that in the beginning it used to be just square, which is easy to transport and most packers used. Today a variety of shapes are appearing, the trays can be a little bit more different, they can be oval shape, bowl shape, round shape, and also round shape at the corners and they are mostly pre-made, because it is quite hard to make this type of solution thick enough by thermoforming technique, it needs some time. He further explained that one reason for developing round shape at the corners could be because of the increasing usage of microwave oven, so the shape makes it easier to evenly heat the content inside when you have round corners rather than the square ones.

Concerning packaging for chilled products before the tray-sealed valve packaging like Micvac (see below), (SE-P-1) said that it was retort processed tray packaging which is still very common in UK, but one of its biggest problems is that it is hard to make perfect vacuum, leaving some air in the packaging causing the oxidation of vitamins, and it is also difficult to get it heated evenly on each plastic tray in a retort; and, the other system is cook-chill, which doesn't go through pasteurization and has to be done in a very hygienic zone, so it is short chilled shelf life and can't totally guarantee it is not contaminated. (SE-I-2) brought up one functional problem of packaging and that is that heating the product evenly in microwave oven must be guaranteed.

Besides (SE-I-2) mentioned that there is another kind of packaging that contains different layers for vegetables on the top and soup underneath to keep the vegetables crisp. At the same time, (SE-N-1) argued that trays with compartments are relatively few in Sweden today, but it is normally used when there is sauce in the dish to have a nicer appearance. (SE-I-1) also mentioned that it is mainly the handling, easy to open, easy to store and also the variety of different packages, more complete meal packaging so that extra salad, extra bread and maybe also a drink do not need to be added. (SE-I-2) further said that it will be better if the packaging can regulate the temperature of different components, i.e. lingonberry sauce in the dish should be cold when consumed, but it requires some development if the whole meal will be put in the microwave oven, and also different microwave ovens have different effects and the need to get the best quality of the product. Concerning the technologies, tray with compartments are obviously more demanding when filling since there are complex products to be filled, sometimes multistage filling is needed but the sealing procedure is more or less the same.

As a new development (SE-N-1) mentioned that there is a new kind of chilled ready meal processing and packaging from Micvac. The product is pasteurized and vacuumed by

microwave cooking and a unique valve for the air to escape and this maintains the quality and nutritional value and also prolongs the shelf life still at refrigeration.

Regarding packaging migration into food, (SE-N-1) said that media like to write things about it, and some scientists like to find new things making controversy, so they have turned up things all the time that rises people's awareness on the packages. In his opinion, the industry today takes care of most of these known things, but they cannot take care of the unknowns so far. He thinks that packaging is safer than ever, and it needs much more concern of the food in the packaging than the packaging itself. (SE-N-1) and (SE-I-1) both think that migration is not a general issue, since there are too many other things to worry about like air, water, quality, and environmental issues.

*Taiwan:*

(TW-R-3) said that at the earliest stage, the ready meal packaging in Taiwan was tray-sealed, then when 7-Eleven introduced the chilled ready meal know-how from Japan, they also followed the same kind of packaging as in Japan, which is tray with plastic covered with shrink-wrapped plastic film; so, there was a time when there wasn't any tray-sealed packaging in the CVS market, only tray with plastic lid existed (TW-R-2). During the evolution, there are two major kinds of packages for ready meals, bags and trays: in tray packaging, plastic and/or paper are the most common materials whereas plastic is the main category in bag packaging, and some bag packaging using cotton paper to give a better appearance linked with good quality (TW-R-2). The originally plastic bag packaging which can't stand on the shelf affected the appearance, so standing plastic bags came up to solve the problem, but it was too soft to stand for a long time. The further solution is a compound standing bag with different materials to improve (TW-R-2). (TW-R-1 & TW-R-2) pointed out that in the last three years, tray-sealed packaging started to appear again by leaps and bounds in the CVS market for chilled ready meals, and the reasons why it is used again are: (1) The plastic material use can be reduced, so the packaging cost is cheaper. (2) It is friendly to the environment and furthermore it can reduce the environmental protection tax. (3) It saves more space. (4) It is also better for the consumers during transportation since the sealing can be tighter than the plastic lid. (5) It is labor-saving because of the automatic production in the factory whereas the plastic lids had to be placed manually on the trays by the workers before. (6) Effort-saving as it is easier and more convenient for the staff in the store to heat it up. Before the staff needed to open the package, pour out the content from a plastic bag to the tray, and cover back the lid to heat it in the microwave. Now, they even don't need to open the package, just directly put the product into the microwave since the packaging can reduce the pressure when microwaving. Actually, the packaging did exist for other kinds of products long time ago, like for the frozen ready meals and beverages in tea drink shops to seal the cup, but 15 or 20 years ago this kind of packaging wasn't in fashion for ready meals (TW-R-2). (TW-R-3) said that now 20% of the tray-sealed ready meals have a valve on the sealing film, and he believes that tray-sealed packaging is the trend, and that it will be the main kind in the future.

Choice of packaging is related to safety but also to consumer convenience and performance among other things. When using the new package or new packaging material, the company definitely emphasizes the packaging differences (TW-I-1). For

instance, two years ago, Stewed "Gravy" Rice (燴飯, Figure 1) was changed to tray-sealed packaging and both the advertisement video and the website have told the customers that it is a new package with reduced material use and that it can be directly put in the oven. However, the product sales might not increase by changing the design of the packaging, because it is not the key factor according to the respondent. There are also some other examples of packaging solutions for ready meals. Instead of the tray with plastic lid packaging, (TW-R-3)'s company launched salad with a tetrahedron-shaped plastic bag packaging (Figure 2) two years ago, and after opening it, it became like a tray-shaped container. Though it saved a lot of cost and it is more eco-friendly, consumers were not used to it and it has been stopped. Another kind of solution before was a ready meal tray packaging made by corn and plastic which is more eco-friendly but expensive, and because of the properties, it cannot be used in microwaves, which excluded nearly 80% of ready meals, and the environmental protection tax cannot be reduced. So, at the end the company decided not to use it after launching it for a short time (TW-R-3).



Figure 1. Stewed Gravy Rice advertisement on its website  
(Image source: [www.7-11.com.tw](http://www.7-11.com.tw))



Figure 2. Original and Opened tetrahedron-shaped packaging  
(Image source: [www.appledaily.com.tw](http://www.appledaily.com.tw))

*China:*

Flexible packaging is mainly used for ready meals (TW-R-3).

Zhang's (2006) mentioned two problems that need to be solved when developing HMR in China: (1) How to industrialize HMR. (2) How to pack and sterilize HMR to make the meal fresh and prolong its shelf life, and he also suggested that vacuum packaging and modified atmosphere packaging are the main solutions.

## 4.6 Trends of Ready meal

*Sweden:*

From a frozen ready meal aspect (SE-F-1) said that the market is just recovered from the horsemeat scandal and that the market will continue to gain speed again, since the knowledge of cooking is declining and more ready meals will be in the market.

Concerning distribution, (SE-I-1) thinks both frozen and chilled ready meals could expand and people are going to buy food in different ways, instead of in grocery stores and food stores. It might be like via Internet or some other channels that already exist.

From (SE-I-2)'s point of view, one of the trends in the future is what he called component food in frozen ready meal, like chose from ten types of sauces, ten types of meats, and ten types of potatoes, rice or whatever it is, and putting three packages together to build your own complete meal. There will be a number of different choices that could be a very interesting way of developing frozen ready meals.

According to Euromonitor International (2013e), there are some other actual trends: First, there are an increasing number of vegetarians in Sweden and frozen ready meals had the highest share of vegetarian food in 2012 and several manufacturers have launched a range of vegetarian dishes. Second, an emerging concept in Sweden is Shop-in-shop solutions, with GooH AB as the leading company, offering ready meals, drinks, bread and accessories. Third, high quality products are consumers' continuous demand, leading to higher unit prices, especially in chilled ready meals. Forth, major changes in distribution are unlikely but the share of convenience stores will increase, such as 7-Eleven increasingly offering ready meals. Fifth, "locally produced" products are launched to meet the needs of environmental-aware consumers and will benefit small local producers. The last trend is that new flavors will keep being launched in the market.

*Taiwan:*

From interviewing (TW-I-1), the trends of ready meal can be separated into different aspects: (1) healthy, increasing the ratio of vegetable and improving the processing to make it keep the fresh taste and texture, (2) convenience, the appearance, the packaging and the taste are following the consumers' behavior and keep changing, (3) attractiveness which depends on product development and marketing, for example, the product is interesting, attractive and interacting with social networks.

Regarding which category of ready meals will increase or decrease, since CVS industry had led consumers' habits to the development from hot food to fresh food, in the future CVS will keep leading the direction, and it might not develop frozen ready meal and ambient ready meal that much, because if it starts to do this, all the OEMs working on chilled will lose their business; therefore, CVS companies will still research and develop freezing and ambient equipments and technologies but used in the ingredients and semi-manufactured products of ready meals in order to keep them longer and manage ingredient control and price consistency in seasonal products. For instance, when seasons are changing or it is in typhoon season, the price of the ingredients is not stable, vegetables can be really expensive but the price of the ready meals in the store is fixed, so the factory will lose the profit. Euromonitor International (2013d) summarized the trends: single-portion ready meals is a more convenient option for increasing single households, health and wellness ready meals involving organic ingredients increase in the market for the health-conscious consumers and exotic themes products attract the consumers trying out frozen ready meals.

*China:*

All of the big local CVS companies in China want to develop ready meals but the consumers still don't have a general idea about ready meals since they haven't seen a lot of ready meal products, but it will soon change once the CVS industry bring it up (TW-R-3). The sales of ready meals will increase by the development of the convenience stores. Though the local CVS wanted to start all kinds of ready meal business, because of all the difficulties that have been mentioned before, the interviewee said that it is the consultant's responsibility to consult them about how to develop the business. In his opinion, first it should be the hot food like steamed buns, corns, and sweet potato, etc. to build customer habits and let them know the CVS also provide this kind of food; and then frozen products should follow because it is safer for the food to be stored at the freezing temperature and there is a freezer in every stores for selling ice cream and popsicles; then, 4°C products should follow and the last will be 18°C products due to the short shelf life, 24 to 48 hours after production (TW-R-3). The interviewees (TW-R-3 & TW-I-1) also think that the ready meal industry in China will develop similarly to Taiwan, following the steps and the directions like in the early stage in Taiwan referring to Japan as eating habits, living habits and taste are more alike in Asia compared to Europe or America but it will advance in leaps.

The main stream of ready meals distribution channels in China will be convenience stores and hypermarkets since the retail market of supermarkets will be compressed by the other two, and there will be different targets between convenience stores and hypermarkets regarding the servings and portions. Convenience stores will focus on single serving ready meal and hypermarkets will focus on ready meal for family or multi-servings (TW-R-3).

## 4.7 Trends of Ready meal packaging

*Sweden:*

(SE-F-1) thinks the packaging will develop much during the coming years – there will be new/improved kinds of material and new interesting ways of using these new materials in the packing industry for food.

(SE-I-2) said that one trend for ready meal packaging is intelligent packaging. The package can be scanned and heated up optimally in the microwave oven to get the best quality; for instance, putting some kind of protective film on the top of the packaging to make some part of it not to be heated as quickly as the other parts when microwaving.

On the other hand, (SE-N-1) stated that brand development such as increasing attractiveness of the packaging when it is on the shelf facing the consumer can help the product to differentiate from the others by changing the format and the printing sign, and it is mainly happening now. Technology wise there is not too much news certainly not on the frozen side, and on the chilled side there has been a tendency to have easy-opening and easy convenient access to the product. Besides, he doesn't think there will be new kinds of material apart from plastic, fiber and metal but combining the materials. For example, carton is never only carton but often combined with plastic, because it helps to prevent the wet and other things and it is needed for sealing. Plastic is probably the faster growing share of that market because it is easier to get plastic solution working under different conditions, and it's also cheaper than to combine carton which should be folded or molded with higher temperature resistant plastic, and he thinks that it is not effective if producing as a co-extruded plastic layer with that form as a tray.

Findus has launched a new range of products called World Selection which contain ready meal dishes from countries such as Japan, Mexico, Thailand, India and Morocco. It is served in take-away boxes that may be an alternative packaging solution for ready meals (Euromonitor, 2013e).

*Taiwan:*

(TW-R-2)'s opinion of future ready meal packaging is that it will focus on environmental protection because the mark-up of energy resource and paper packaging is causing the forest reduction, and the contaminated properties in plastic material, so the company hopes to reduce the amount of packaging as much as possible, such as if it can be packed in a bag not use box/tray, since a box or a tray uses more packaging material than a bag. Yet it still takes time to communicate and educate the consumer to bring up the concepts, so he thinks that the flexible packaging will increase in the future, because of the cost and also the environmental protecting issue. It also has a possibility of changing to the bag packaging to reach a better logistic or to transport more at once, which may lower the transportation costs.

Moreover, even with the failure of changing the packaging of the salad into plastic bags, it made (TW-R-3) think that it will be more environmental friendly and saving a lot on

cost and material if changing the plastic tray packaging into plastic bag packaging, but it needs government to lead the industry towards this direction. It might be better that the packaging companies communicate with the environmental protection unit in the government to make them lead the way of reducing packaging material. He also said that it is possible to have a more eco-friendly packaging with a higher price which consumers will accept, if the properties of the packaging still are the same and the tax can also be reduced; due to plasticizer scandal, people are more aware of the plastic packaging, and they would like to have plastics reduced in packaging.

Considering the packaging of HMR, it will be mainly in bag since it will be taken home to have a simple and easy preparation and the container kind of packages are relatively inconvenient, and the container needs a certain amount of space when carrying it home and store in the fridge (TW-R-2).

*China:*

The ready meal packaging will also refer to the packaging in Taiwan, also to Japan and the other countries (TW-I-1).

## 5. Discussion

In order to discuss further in this chapter, the results have been summarized in Table 10. As mentioned previously, due to time and geographical limitations for interviewing and secondary data collection, and also to the fact that ready meals in China are at the beginning stage, the results reflect in less information about ready meals in China, but still showing some crucial viewpoints.

**Table 9. Summary of the Results**

		Sweden	Taiwan	China
<b>Serving and portion</b>	Now	<ul style="list-style-type: none"> <li>Mainly single serving</li> </ul>	<ul style="list-style-type: none"> <li>Mainly single serving</li> </ul>	<ul style="list-style-type: none"> <li>Having as a supplement</li> </ul>
	Future	<ul style="list-style-type: none"> <li>Continue growing</li> </ul>	<ul style="list-style-type: none"> <li>Continue growing</li> </ul>	<ul style="list-style-type: none"> <li>Change to single serving</li> </ul>
<b>Distribution</b>	Now	<ul style="list-style-type: none"> <li>Mainly supermarkets and hypermarkets</li> </ul>	<ul style="list-style-type: none"> <li>Mainly Convenience Stores</li> </ul>	<ul style="list-style-type: none"> <li>Mainly frozen in supermarkets and hypermarkets</li> </ul>
	Future	<ul style="list-style-type: none"> <li>Keep the same, small increase in convenience stores</li> </ul>	<ul style="list-style-type: none"> <li>Keep the same</li> </ul>	<ul style="list-style-type: none"> <li>Change to mainly convenience stores</li> </ul>
<b>Ready meal market</b>	Now	<ul style="list-style-type: none"> <li>Mainly frozen (49%)</li> <li>Chilled is growing</li> <li>Quality of frozen is good</li> <li>Bad image in frozen</li> <li>Horsemeat scandal</li> <li>Price of frozen ready meal is too cheap</li> </ul>	<ul style="list-style-type: none"> <li>Mostly chilled (91%)</li> <li>Chilled are mainly CVS private brand</li> <li>No ambient meals beside canned and dried</li> </ul>	<ul style="list-style-type: none"> <li>Frozen is larger in retail market</li> <li>In CVS, frozen:chilled=1:1</li> <li>Mainly local brand, few private brand from foreign investment CVS</li> <li>Problems: logistic, safety, supply chain, cold chain, position</li> </ul>
	Future	<ul style="list-style-type: none"> <li>Increasing price of frozen</li> <li>Chilled keeps growing</li> <li>Luxury brand might appear</li> <li>Varieties of meal choices</li> </ul>	<ul style="list-style-type: none"> <li>Frozen will grow</li> <li>Vegetarian meal is growing for health and diet demands</li> <li>New flavors to arise interest on frozen food</li> <li>Restaurantize: providing dining area</li> </ul>	<ul style="list-style-type: none"> <li>When all the problems solved, ready meals sales will grow especially in CVS</li> </ul>
<b>Target consumer</b>		<ul style="list-style-type: none"> <li>Students and elders</li> <li>Frozen: office workers and retired people</li> <li>Chilled: single household wanting quick good food</li> </ul>	<ul style="list-style-type: none"> <li>Limited from CVS</li> <li>18-45 yrs</li> <li>Students and office workers</li> <li>Start to target elders</li> </ul>	<ul style="list-style-type: none"> <li>18-45yrs</li> <li>For supplements: (1) not eating at the regular meal time, (2) want to have food between meals, (3) students between classes</li> </ul>

<b>Consumer behavior</b>	<ul style="list-style-type: none"> <li>• Cook by themselves</li> <li>• Busy working people</li> <li>• More demanding</li> <li>• Like to compare prices</li> <li>• Still buying lasagna after scandal</li> <li>• Choice between frozen and chilled depends on the occasion.</li> <li>• Look but still price oriented on eco-friendly and fair-trade products</li> </ul>	<ul style="list-style-type: none"> <li>• High concern on safety, shelf life, microwave heated</li> <li>• Demands on nutritional value might grow</li> </ul>	<ul style="list-style-type: none"> <li>• Mostly cook at home, small dining out population</li> <li>• Impulsive when deciding meal solution</li> </ul>
<b>Do consumer care about the packaging?</b>	<ul style="list-style-type: none"> <li>• Care about nice appealing, easy to carry, open, discard, not causing much food waste</li> <li>• Don't care a lot if the quality is good</li> <li>• Food companies concern more</li> </ul>	<ul style="list-style-type: none"> <li>• Migration from packaging to food</li> <li>• Appearance and design also affect some of the sales</li> </ul>	N/A
<b>Ready meal packaging</b>	<ul style="list-style-type: none"> <li>• Different tray types, pre-made plastic tray, form-fill-seal plastic tray, aluminum foil tray, molded pulp tray</li> <li>• Shape: square to vary kinds</li> <li>• Compartments</li> <li>• For chilled ready meal: retort or cook chill, new kind appears: pasteurize and vacuum</li> </ul>	<ul style="list-style-type: none"> <li>• In chilled: tray-sealed first, then tray with lids, and now tray-sealed again</li> <li>• Two main kind: tray and bag</li> <li>• Package choice based on safety, convenience, performance</li> </ul>	<ul style="list-style-type: none"> <li>• Flexible packaging prevails</li> </ul>
<b>Trends of ready meals</b>	<ul style="list-style-type: none"> <li>• Frozen just recovered from scandal</li> <li>• More different channels</li> <li>• Component food</li> <li>• Vegetarian</li> <li>• Shop-in-shop</li> <li>• High quality</li> <li>• Distribute more in CVS</li> <li>• Locally produced</li> </ul>	<ul style="list-style-type: none"> <li>• Healthy, convenience, attractiveness</li> <li>• CVS lead the trend</li> <li>• Organic ingredients</li> <li>• Exotic themes in frozen to attract people</li> </ul>	<ul style="list-style-type: none"> <li>• Ready meal sales will increase by CVS</li> <li>• Development path will be similar to Taiwan: hot food, frozen, 4°C, 18°C</li> <li>• Main channel will be in CVS and hypermarket, CVS for individual size, hypermarket for family size</li> </ul>
<b>Trends of ready meals packaging</b>	<ul style="list-style-type: none"> <li>• Intelligent packaging</li> <li>• Increasing brand attractiveness from design</li> <li>• easy-opening and easy access</li> <li>• Plastic keeps growing</li> <li>• New take-away box form Findus product</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on environmental issue</li> <li>• Flexible packaging increase</li> <li>• Possible change into bag packaging</li> </ul>	<ul style="list-style-type: none"> <li>• Follow Taiwan, Japan and other countries</li> </ul>

### *Serving and portion*

The serving of the ready meals in Sweden and Taiwan are and will still be mainly single serving. It is because of the increasing single household, irregular time having the meal or different mealtime within the family, so single serving sales will continue to grow in these countries.

On the other hand, in China, ready meal is not a regular meal solution, it is a supplement for those who want to have food between meals, didn't eat at the regular mealtime or have really limited free time between the school and the afterschool class. The first reason for these phenomena to happen is living habits, people are still cooking at home even for lunch and there is restaurant in the office; the second reason is that the supply chain and its actors are not well established yet. For instance, local factories don't have the techniques to produce ready meals, and if ready meals in China will follow the similar developing path as in Taiwan, this means that, convenience stores will be the main distribution channel for ready meals. However, nowadays in China, convenience stores are not well developed yet, especially local investment CVS; moreover, the whole supply chain and cold chain are even not well built. Currently, CVS are still growing and forming into a complete mature system, this happened because in China, hypermarkets and supermarkets sprang up on the market first, hence the consumers are already used to the cheap price of these venues, so when convenience stores were introduced, Chinese people did not accept their prices since they have different expectations from the cheap options of hypermarkets and supermarkets. Therefore, now the convenience stores are seeking for some services or products to differentiate in the market, and of course, ready meal is one of the suggested products due to its promptness, convenience and single one-time serving. It is more likely ready meals in China will become single serving once the convenience stores position themselves at the right place and communicate with the consumers to let them get used to buy products in the stores for meals.

### *Distribution*

There is a huge difference on the distribution channels between Sweden and Taiwan due to shopping styles and consuming occasions. The main channel in Sweden is supermarkets and hypermarkets, because the main ready meal category in Sweden is frozen as Swedes usually buy more than one ready meal at a time and stored them into the freezer for later consumption; On the other hand, in Taiwan, the channel is convenience stores which provides both chilled and frozen ready meals, but mainly chilled. The shelf life of chilled ready meals is very short, so people usually just buy one meal for the immediate consumption. Convenience stores become the best choice regarding availability to reach everywhere, to heat up in the stores by microwaving, and sometimes the convenience stores even provide dining areas. The difference between these two countries can be implemented on the Swedish convenience stores to expand the business, but under some conditions. Since the population density in Sweden is much lower, the country territory is vast and the shelf life is short, increasing the difficulty of distribution and the risk of wasting food, it is not possible to use exactly the same method to have chilled ready meals in every convenience store with a wide range of choice as it is the current case in Taiwan. What it can be done instead then is having the convenience store with many kinds of chilled ready meals in certain convenience stores for certain kinds of consumers. For instance, in the train station or airport, in the business area, or inside the

colleges, where more people are finding fast meal solutions at anytime of the day. And, actually, retailer ICA already launched the stores with a similar concept, called ICA To Go. Moreover, one of the advantages to have more chilled meal is that the convenience stores can have their private brand, which also helps to gain larger profit.

Regarding China, their logistic system is not well established yet, but most likely, convenience stores will be the main distribution channel since the foreign investment convenience stores already started to do business while the local investment convenience stores are seeking to expand their business in ready meals.

### *Ready Meal Market*

Some respondents said that the price of frozen ready meals in Sweden might grow, and there are also some interviewees mentioning that the chilled ready meals will keep growing in Sweden. It is worth to be discussed if the increasing price and the other factors such as the bad image of frozen ready meals will affect both frozen and chilled ready meals sales.

Since French frozen food company, Picard, has entered Swedish ready meal market, it has been pointed out that premium brands will also be an upcoming trend, yet there is no premium brand for ready meals in Taiwan. For the CVS companies or the food companies, it might be a good direction to develop. In China, since people think the products in the convenience stores are more expensive, premium ready meals might find a market there, but the prerequisite will be whether the technologies and the supply chain they have are enough to support the products or not.

Variety of meal choices and different new flavor are the strategies to attract consumers in both Sweden and Taiwan. For example, in Taiwan, exotic flavor products were also launched to arise people's interest to frozen ready meals, and the increasing vegetarian ready meals in both countries can meet the demands for health and diet.

It is also mentioned that Taiwanese convenience stores started to have bigger stores and provide dining area to restaurantize in order to attract more customers, and this concept might be later applied in Sweden in certain convenience stores, as mentioned above, to have a different position in the market and to make people feel like that the convenience stores can also be a place for eating.

### *Target consumer*

In all three countries, the target consumers are mainly the same, single households, students, and office workers. In Sweden, retired and elder people are also targeted, which Taiwanese ready meal companies started to target recently as well. Although they represent different kinds of products, the ones in Sweden are frozen while the ones in Taiwan will probably be chilled, the Swedish market is still a good reference to see what the Taiwanese market can offer to its consumers. Besides, one of the Swedish food companies, Dafgårds, has launched a series of low GI (Glycemic Index) ready meals (Figure 3) suitable for diabetic who are mainly elders. From the packaging aspect, the packaging for elder people should be more ergonomic and friendly, since this market

segment might have more problems concerning the use of the package, like carrying, storing, looking the information, opening, preparing and consuming.



**Figure 3. Dafgård's GI ready meal**  
(Image source: [www.familjendafgard.se](http://www.familjendafgard.se))

*Do consumer care about the packaging?*

Most of the attributes of the ready meal packaging that consumers care about are the appearance, design, ergonomic aspects like easy-opening, easy-carrying, and easy to discard. And, not causing too much food waste is also one of the rising issues. Evidently, consumers care about the packaging, but taste, price and quality are still the first characteristics they consider when buying, hence the ones most concerned about all these attributes are actually the food companies who develop the products.

It might also be because that when all the products meet the demands of taste, price and quality, the food companies need something else to differentiate their products. Packaging can be one of the solutions to stand out in the market, and it also can be a solution to improve the quality of ready meals.

It was also found that Swedes have high confidence in the companies, and there is also a high level of trust between the companies. Unlike Sweden, consumers in Taiwan have high concerns of the food product and its packaging, worrying if the migration will happen; especially after the plasticizer scandal, the issue has been brought up more and paid more attention to. So, this might be one of the aspects that consumers care about, and there is also a need to build the trust of ready meals. The Taiwanese market can try to understand how it works in Sweden, and learn from it.

### *Summary*

To sum up the discussion above and make it clearer, the current situation, trends and opportunities in ready meals and its packaging are summarized in Table 11.

**Table 10. Summary of current situation, trends and opportunities in ready meals and its packaging**

	Sweden	Taiwan	China
Current situation of ready meals	<ul style="list-style-type: none"> <li>• EUR784 million sales in 2012</li> <li>• Constant value 1% over forecast period 2012-2017</li> <li>• Mainly single serving</li> <li>• Mainly in supermarkets and hypermarkets</li> <li>• Mainly frozen (49%)</li> <li>• Price of frozen ready meal is too cheap</li> <li>• Frozen: office workers and retired people</li> <li>• Chilled: single household want quick good food</li> </ul>	<ul style="list-style-type: none"> <li>• EUR687 million sales in 2012</li> <li>• Constant value 4% over forecast period 2012-2017</li> <li>• Mainly single serving</li> <li>• Mainly in Convenience Stores</li> <li>• Mostly chilled (91%)</li> <li>• Chilled are mainly CVS private brand</li> <li>• 18-45 yrs target consumer</li> <li>• Migration concerns from packaging to food</li> <li>• Tray-sealed package has increased rapidly in these three years</li> </ul>	<ul style="list-style-type: none"> <li>• At the beginning stage starts to grow</li> <li>• Not too many ready meals on the market yet</li> <li>• As a supplement meal: (1) not eating at the regular meal time, (2) want to have food between meals, (3) students between classes</li> <li>• Mainly frozen in supermarkets and hypermarkets</li> <li>• Mainly local brand, few private brand from foreign investment CVS</li> <li>• Problems: logistic, safety, supply chain, cold chain, positioning</li> </ul>
Trends of ready meals	<ul style="list-style-type: none"> <li>• Increasing sales in convenience stores</li> <li>• Price of frozen increasing</li> <li>• Premium brand might appear</li> <li>• Varieties of meal choices</li> <li>• Eco-friendly and fair-trade products slowly growing</li> <li>• More different channels</li> <li>• Component food</li> <li>• Vegetarian</li> <li>• Shop-in-shop</li> <li>• Locally produced</li> </ul>	<ul style="list-style-type: none"> <li>• Start to target elders</li> <li>• Frozen will grow</li> <li>• Vegetarian meal is growing for health and diet demands</li> <li>• New flavors to arise</li> <li>• Interest on frozen food</li> <li>• Restaurantize: providing dining area</li> <li>• Demands on nutritional value might grow</li> <li>• Organic ingredients for health demands</li> <li>• Exotic themes in frozen to attract people</li> </ul>	<ul style="list-style-type: none"> <li>• From supplement change to single serving</li> <li>• Ready meals sales will grow especially in CVS</li> <li>• Development path will be similar to Taiwan: hot food, frozen, 4°C, 18°C</li> <li>• Main channel will be in CVS and hypermarket, CVS for individual size, hypermarket for family size</li> </ul>
Trends of ready meals packaging	<ul style="list-style-type: none"> <li>• New kind appears: pasteurize and vacuum (Micvac)</li> <li>• Intelligent packaging</li> <li>• Plastic keeps growing</li> <li>• New take-away box form</li> <li>• Findus product (60% of original material used)</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on environmental issue</li> <li>• Flexible packaging increase</li> <li>• Possible change into bag packaging</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Taiwan, Japan and other countries</li> </ul>
Opportunities encountered	<ul style="list-style-type: none"> <li>• CVS in Sweden can try to use the develop method or concept of Taiwanese CVS to expand their business in certain stores</li> <li>• Restaurantizing by providing dining area in CVS</li> <li>• Launching more chilled ready meal to provide another kinds of consuming occasion</li> </ul>	<ul style="list-style-type: none"> <li>• Having more kinds of ingredients in chilled by improving technique (ex: seafood in pasteurizing package)</li> <li>• To have premium ready meals in the market</li> <li>• Refers to Sweden to develop ready meal for elders and special need</li> <li>• Changing to a better packaging from Sweden or other countries to improve the quality, shelf life and eco-friendliness</li> </ul>	<ul style="list-style-type: none"> <li>• Providing ready meals services to differentiate the market from CVS, also having private brand</li> <li>• To have premium ready meals in the market</li> <li>• Referring to other countries' experience to develop ready meal business faster</li> </ul>

The main current situations need to be noticed are: (1) Ready meals markets are still growing. It keeps growing in both Sweden and Taiwan, and it will grow a lot in China since it is at the beginning stage in there. (2) The huge difference between the main categories of ready meals. Frozen in Sweden, chilled in Taiwan, and probably will be mainly chilled in China. (3) Tray-sealed packaging has grown rapidly in Taiwan in these three years.

The trends of ready meals can be categorized on three main streams: (1) Healthy: Organic, local produced, vegetarian products are increasing, and also the consumers are more aware of the nutritional value of the products. (2) Convenience: In Sweden, there is a new concept “shop-in-shop” from ICA To Go providing on-the-go single serving ready meals, and the ready meal sales in convenience stores is also increasing. In Taiwan, convenience stores started to restaurantize giving a dining area for the customers to consume the products they bought. (3) Different ranges and choices: Premium brands might occur. New flavors and international exotic cuisine are always the factors attracting the consumers. Component food might also be in the trend, which can offer different kinds of components such as meat, sauce and carbohydrates to let the consumers make their own combinations, in addition, having some special meals for some particular demands like elders.

Concerning trends of ready meals packaging, these are: (1) Function: Intelligent packaging, like Micvac, which can pasteurize and vacuum the chilled ready meal in a tray by microwaving to prolong its shelf life up to 30 days, and Culidish, a development that allows different compartments of the meal to be microwaved in one package making possible that each of them reach the different desired temperature at once. (2) Eco-friendliness: the closure of the tray has changed from plastic lid to plastic film in these three years in Taiwan, and in Sweden, plastic film is the main use. It might change to bag packaging with a user-friendly and ergonomic design for reducing the material use. Recently, Findus, one of the biggest ready meal companies in Sweden, has launched a ready meal with the claim that its packaging only uses 60% of the material used originally.

The opportunities are generated from the current situation of each country and the trends of ready meals and its packaging. The opportunities in Sweden are: (1) Develop more on chilled ready meals, which is still a small market and there will be more opportunities and availabilities if the products have longer shelf life. (2) Have convenience stores as a channel. One of the properties of ready meals is convenience, which the customer in convenience stores seeks, and there is already a complete supply chain and cold chain build in CVS industry. (3) Restaurantize convenience stores. Providing a small dining area in the store with seats and tables to attract more customers to buy and consume the products. The opportunities in Taiwan are: (1) Provide different ranges of products targeting different kinds of consumers such as premium brands and products for elders. (2) Change to a better packaging in both functional and eco-friendly way. Functional packaging like intelligent packaging or packaging to extend the shelf life and quality, and eco-friendly packaging by reducing the material use or using a better material. The opportunities encountered for China are: (1) Develop the whole ready meal industry. Ready meals are still in the beginning stage, so there are huge potential markets in both chilled and frozen ready meals, and the market of its packaging will also relatively grow. (2) Convenience stores provide ready meal services to differentiate the market and have

their own private brand. Convenience will become one of the main distribution channels of ready meals. (3) Referring to other countries in order to develop the business faster.

From all of the opportunities above in each country, the food and packaging clusters can find their opportunities to expand their business in those three countries, and they could also know what can they learn from the others.

*Suggestion for the packaging solution company, Multivac*

There could be an opportunity for Multivac to enter the Taiwan ready meal market and the China ready meal market, because Multivac has some more advanced technology to apply on ready meals. It could be suggested to enter the Taiwanese market first since the ready meal market is more mature and the cold chain, supply chain and its actors are well established. Since most of the CVS companies in Taiwan have their business or cooperation with CVS in China, there is also a possibility to enter China market via them. In China, the foreign investment CVS is more developed, they already have the factories and experience in ready meals, so it is easier to cooperate with them. But, the market for ready meal packaging for foreign investment CVS might be saturated and they might already have packaging solution companies to work with. Concerning local investment CVS, they are still in the beginning stage of ready meal business, and they don't have any factories or cooperated factories, so there is a huge growing space and opportunity and it is more flexible to change, but it might also be a challenge since they haven't had any experience.

Moreover, the trend of the rising awareness on environmental protection issues makes the consumers more concerned about the packaging. As suggested in the results, one of the solutions is to change the plastic lid cover to plastic film sealed closure which is the main focus in this paper and what Multivac can work on to introduce to the customers. Another possible solution is to change the tray packaging into bag packaging, because it uses less packaging material while maintaining the complete functions; for instance, a standing container one can directly eat from, like a bowl, a plate or a tray. Since thermoforming is one of the technologies Multivac is proud of, there might be a possibility to develop a new kind of bag packaging to substitute the trays.

## 6. Conclusion and Further research suggestions

The aim of this research is that identifying the opportunities by comparing and understanding market trends and product development of tray-sealed single serving ready meals and packaging in Sweden, Taiwan, and China, and one could learn from each other. The main question that has to be solved is: “What are the different markets and trends of tray-sealed single serving ready meals in Sweden compared to Taiwan and China?” So, interviewing, secondary data collecting and thematic analysis are the methods to be used in this research.

It started from looking at the definitions of the terms related to ready meals as ready meals were the focus of this study, and then the history and the development of ready meals and its packaging were described to understand deeper the ready meals of today. Then the results are following the interview questions outline. First, servings and portions were discussed to certify the focus of the research and finding out that increasing single households, busy and hectic lifestyle, irregular and different meal time with others are the reasons for single serving packaging. Then, the difference of the distribution channels in three countries is compared: in Sweden it is mainly supermarkets and hypermarkets, in Taiwan mainly convenience stores. This led to the study of convenience stores in Taiwan and China and how CVS in Taiwan have developed ready meals and its packaging. CVS in Taiwan took the leading place in the whole supply chain, not only being a distributor but also a producer as they cooperated with their OEM to produce their private brand ready meals.

The development procedure generally is very market and consumer oriented. The product development starts from a market survey, in store observations and POS data analysis, plus the strategy of weather marketing (typical for Taiwan). Having all the above information, the current situation of ready meal markets in Sweden, China and Taiwan is quite known. As can be expected, the consumer is the most important factor affecting the markets, so ready meals and its packaging in the consumer perspective have been discussed, including the target consumer, the consumer behavior and whether the consumers care about the packaging or not.

To end up the research, more trends of ready meals and packaging are reviewed. After summarizing the results the differences between the countries are discussed in order to identify the opportunities for each country to learn from the others. The opportunities for Sweden could be that the CVS in Sweden can try to use the develop method or concept of Taiwanese CVS to expand their business in certain stores, restaurantizing by providing dining areas and launching more chilled ready meal to provide another kind of consuming occasion. And for Taiwan opportunities could be to have more kinds of ingredients in chilled by improving techniques (ex: seafood in pasteurized package), to offer premium ready meals in the market, referring to Sweden to develop ready meal for elders and special needs, and changing to a better packaging from Sweden or other countries to improve the quality, shelf life and eco-friendliness. Finally, in China, the opportunities

are: providing ready meals services to differentiate the market from CVS, also having private brands, to have premium ready meals in the market, and referring to other countries' experience to develop ready meal business faster.

Therefore, for the companies who want to expand their business locally, they need to see the opportunities in their own country to know how they should improve. For those wanting to expand abroad they might find the opportunities in the country they want to work in by seeing what they are lacking now.

#### *Further Research*

Since this study only contains ten interviewees in total from Sweden and Taiwan in different professional areas, it would be more complete if the further research has more interviewees in each kind of professional background and from each country, especially in this research, there is a limitation on having Chinese interviewees. And, from the history and developments of ready meal and its packaging in Taiwan, it is not hard to see that ready meals and packaging are mainly learned from Japan, so the research can include Japan, which is the leading country of ready meals and packaging in Asia to compare with Europe or even America. Moreover, in the result and discussion section, the trend of changing tray packaging into bag packaging might be interesting to discuss further on to see the possibility and the percentages of trays can be substituted by bags and how to communicate with food companies and consumers, and even government for supporting. Besides, Delphi method can be used in the future study for discovering the trends more specifically.

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